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US Army Corps
of Engineers
Fort Worth District

**FOUNDATION
REPORT**

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**COMPLETION OF
EMBANKMENT, SPILLWAY
AND OUTLET WORKS
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS**

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CORPS OF ENGINEERS
FORT WORTH DISTRICT, TEXAS



FOUNDATION REPORT
COMPLETION OF EMBANKMENT AND SPILLWAY

RAY ROBERTS LAKE

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AUGUST 1990

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RAY ROBERTS LAKE FOUNDATION REPORT

1. INTRODUCTION.

a. **Project Location and Description.** Ray Roberts Dam and Lake project is situated in northern Denton, south-central Cooke and western Grayson Counties. The Dam is at river mile 60.0 on Elm Fork of the Trinity River, approximately 30 river miles north of Lewisville Dam. The location of the project is shown on Plate 1. The principal features of the project include (1) a rolled earthfill embankment approximately 14,980 feet long; (2) a limited service spillway consisting of an uncontrolled trapezoidal broad-crested weir; the spillway crest length is 100 feet; and (3) the outlet works, consisting of an excavated approach channel, intake structure and service bridge, a 708-foot long by 13-foot diameter cut and cover conduit, stilling basin and excavated discharge channel (see Plate 2). For the future addition of hydropower, a separate steel-lined concrete 5-foot diameter low flow conduit was constructed beneath the main flood control conduit. (SDN)

b. **Construction Authority.** Congressional authority for construction of Aubrey Lake (now Ray Roberts Lake) is contained in the Public Works - Rivers and Harbor Act approved 27 October 1965 (Public Law 89-298) in accordance with the plan of improvement as outlined in House Document No. 276 (89th Congress, 1st Session).

c. **Purpose of the Report.** This report was prepared in accordance with requirements as set forth by the Office, Chief of Engineers in ER 1110-1-1801.

The purpose of this report is to provide a complete record of foundation conditions encountered during construction. Information contained in this report will be valuable when evaluating (1) necessary remedial action required to prevent or repair any problems resulting from foundation deficiencies; (2) contractor claims related to foundation conditions or alleged change of condition; and (3) planning and design of future comparable construction projects.

A copy of this report should be included in the permanent records maintained at the project office.

d. **Project History.** Four dam site locations were studied prior to final site selection. Site No. 1, the project document site, is at river mile 60.0. Sites 2, 3, and 4 are at river miles 55.9, 51.2, and 64.0, respectively. Three holes were drilled at Site 2 in 1970. No subsurface explorations were done at Sites 3 and 4.

Site No. 4, located upstream of the confluence of the Elm Fork and Isle du Bois Creek would require two embankments and in effect form two lakes. Site No. 4 would also require two outlet facilities or an equalizer channel. This was the uppermost site considered. Sites downstream from Site 3 would be in the flood pool of Lewisville Lake and would require a major railroad relocation.

Based on studies that included an appraisal of the physical, historic, economic, and social impacts at each site, and the results from a public meeting held in April 1971, Site No. 1 was selected as the recommended site. By Public Law 96-384, dated 6 October 1980, the

project name was officially changed from Aubrey Lake to Ray Roberts Lake.

Seven locations, designated A through G, for the spillway were investigated. Cost estimates were made for gated, broadcrested, and uncontrolled ogee spillways. Consideration was also given to a perched spillway with the crest elevation at 5 feet, and at 10 feet above the top of the flood control pool.

Site A was used for the gated spillway estimate for site selection. It was in the steep slope of the east abutment and proved to be undesirable from the standpoint of stability and excessive excavation. Site B, the recommended site, was used for the uncontrolled spillway estimate for site selection, and for various other plans. Site B proved to be the most economical spillway location regardless of type of spillway. Site E at Culp Branch on the west abutment was investigated, but spillways here were too costly because of excessive channel excavation and downstream land requirements. Sites C, D, F, and G were eliminated by inspection because of excessive excavation and additional land requirements.

Studies showed that a gated spillway had a higher first cost than the uncontrolled spillways. Annual operating and maintenance costs for a gated spillway would also be appreciably greater. Several studies were made of various plans with both broadcrested and ogee uncontrolled spillways, in order to optimize size and type of structure.

Studies were made for uncontrolled spillways with widths varying

from 100 feet to 1,000 feet. These studies indicated that the most economical project would be one with the narrowest spillway and highest embankment. A width of 100 feet was judged to be the practical minimum and was, therefore, selected for the recommended plan.

e. **Contractors Supervision and Quality Control Organization.** The embankment, spillway, and outlet works for Ray Roberts Lake were constructed under one contract. Pertinent data related to the contract are listed below:

Contractor: Phillips and Jordan, Inc., Knoxville, TN

Contract No.: DACW63-82-C-0083

Contractor's Bid: \$48,657,799

Notice to Proceed: 31 May 1982

Completion Date: 9 October 1986

Total Payment Including Modifications: \$51,491,731.27

(1) **Quality Control.** The quality control organization was furnished and compensated by the contractor.

(2) **Contract Supervision.** Construction was under the immediate supervision of the District Engineer, U.S. Army Engineer District, Fort Worth, Texas. The contracting officer's representative for administration of the contract was Mr. Webb Boland. The following personnel participated in administering the contract: Mr. Mark Gibson, outlet works construction, and Mr. David Bowie, embankment and spillway construction.

2. FOUNDATION EXPLORATIONS.

a. **Investigations Prior to Construction.** Dam Site No. 1 was first explored in 1939. Eight combination auger and core borings numbered C-1 through C-8 were drilled near the present alignment. The borings ranged from 67 to 217 feet in depth. In December 1960, three additional combination auger and core holes, numbered 9 through 11, were drilled on the right abutment slope, ranging in total depth from 30.6 to 106 feet. There are no testing records on either the overburden materials or the rock cores and the borings were not pressure tested. Boring locations are shown on Plates 4 through 7. Logs of boring are shown on Plates 8 through 39.

Twenty-two additional holes were drilled in 1971 and 1972 during the General Design Memo Study Phase. These holes were numbered 12 through 27, and B, C, D, E, F, J, and K. The following table shows the location, total footage, and purpose for these holes.

Location	: Number : Drilled	: Total : Footage	: : Purpose
Right (West) Abutment	6	292.0	Embankment Foundation
Left (East) Abutment	1	51.0	" "
Valley Section	4	296.4	" "
Spillway	7	476.3	Spillway Location & Foundation
Right Abutment Outlet Works	2	95.2	Intake & Stilling Basin Foundation
*Left Abutment Outlet Works	2	105.8	Intake & Stilling Basin Foundation

*Alternate location considered for outlet works.

In late 1972 and 1973, 37 additional holes were drilled. These holes were numbered 28 through 77. Holes 41 through 49 were 3-inch

Shelby tube holes, drilled along the axis of the uncontrolled spillway. Holes 3S-52 through 3S-57 were 3-inch shelby tube holes drilled along the centerline of the outlet works discharge channel. The other 22 holes were drilled in the embankment foundation.

In 1975 and 1976, holes 83 through 99 were drilled in the outlet works area, with the exception of hole 3F-86, which was drilled on the left abutment.

In late 1975, nine 8A6C holes, designated 301 through 309, were drilled at Site E for spillway site selection. This site was was not selected.

In October 1980, holes 310 through 316 were drilled, and in April 1981, holes 358 through 366 were drilled, all in the outlet works area.

One calyx hole (42-inch auger) was drilled in March 1975, to a depth of 46.5 feet to investigate soft clay seams in the embankment foundation. The hole was located at Station 120+70, 130 feet upstream.

A total of 113 foundation borings were drilled at the project.

b. Investigations During Construction. No problems requiring additional subsurface explorations were encountered during construction.

3. GEOLOGY.

a. Physiography. Ray Roberts Dam and Reservoir lie within the Gulf Coastal Plain physiographic province. The coastal plain of Texas is characterized by a broad rolling landform extending from the outcrop of the basal Cretaceous sands to the northwest to the Gulf of Mexico on

the southeast. It has developed upon a sequence of sedimentary rock units which dip gently southeastward, resulting in successively younger formations cropping out Gulfward. The outcrop of each formation or group in the coastal plain of Texas has distinctive soil, vegetation, and erosion characteristics which are the basis for further physiographic subdivision. Ray Roberts Dam and Reservoir lie within two such subdivisions; the Grand Prairie and the Eastern Cross Timbers. Damsite Geology is shown on Plate 3. The Grand Prairie, a subdivision which has developed on the outcrop of the Washita Group of Lower Cretaceous age, occurs generally west of the Elm Fork of the Trinity River. It is characterized by a rolling to hilly topography supported by limestone, marl, clay shale, and sandy shale. Typically, it is a grassy country, the uplands being given largely to grazing, the valleys being important agriculturally. Situated east of the Elm Fork, the Eastern Cross Timbers has developed on the outcrop of the Woodbine Formation of Upper Cretaceous geologic age. The Eastern Cross Timbers is characterized by a rolling to moderately rugged topography which supports a prolific growth of post oak trees.

b. Site Geology.

(1) **Overburden.** Overburden on the abutments consisted of predominantly residual clay and clayey materials generally ranging from 25 to 35 feet in thickness. The embankment is founded on these materials. In the spillway area, 2 to 11 feet of clay and silty clay with scattered gravel were removed and this structure is founded on

weathered clay shale. Overburden materials in the floodplain consist of 35 to 45 feet of alluvial clays, silts, sands, and gravels, comprising the floodplain embankment foundation. In the outlet works area about 20 to 30 feet of alluvial clays, silts, sands, and gravels were removed and the outlet works is founded in unweathered clay shale of the Pawpaw Formation.

(2) **Structure.** Subsurface investigations and subsequent foundation mapping during construction of the dam, outlet works and spillway have not revealed faulting or any other structural anomalies that would adversely affect the foundation of these structures. Correlation of marker beds encountered in the foundation borings show that the strata strike northeast and dip about 60 feet per mile to the southeast. Locally, minor undulations occur within the strata.

(3) **Stratigraphy.** Primary materials at the site from oldest to youngest are Pawpaw shale, Main Street limestone and Grayson marl of Lower Cretaceous age, and the Woodbine Formation of Upper Cretaceous age. The broad Elm Fork River valley is partially filled with Recent floodplain alluvium, while the uplands bordering the valley are often covered with Quaternary age terrace deposits.

a. **Pawpaw Shale.** Except for some isolated remnants of Main Street limestone, the Pawpaw shale comprises the primary strata beneath the embankment between station 0+00 to the base of the left abutment, the outlet works, and spillway (see Plates 44 through 48). The formation is composed of a soft to moderately hard, gray to black,

medium bedded clay shale, often sandy with sand laminations and lenses up to several inches thick. Thin, limy, fossiliferous zones occur throughout the formation.

b. **Main Street Limestone.** The Main Street limestone conformably overlies the Pawpaw shale. A full section is present in the left abutment. Erosional remnants occur in the central part of the embankment foundation and on the right abutment slope above elevation 640. The limestone is about 12 feet thick, moderately hard to hard, gray, fossiliferous, massive at its base, and becomes shaly as it grades into the overlying Grayson marl.

c. **Grayson Marl.** The Grayson marl occurs only in the left abutment at the dam site. It is represented by a soft to moderately hard, gray, highly calcareous, thick bedded, fossiliferous shale, that becomes increasingly marly at its base. Often a thin shaly limestone bed caps the formation separating it from the unconformably overlying Woodbine Formation. The Grayson and Main Street Formations are usually mapped as one geologic unit. At the dam site, their combined thickness is about 30 feet.

d. **Woodbine Formation.** The left abutment, above approximate elevation 565, is comprised of sediments belonging to the Woodbine Formation. Core borings made for the embankment reveal a fine-to-coarse-grained sand with scattered ironstone concretions and thin, poorly cemented sandstone seams to approximate elevation 600. In the basal portion of the Woodbine, a soft to moderately hard, gray to

brown, sandy clay shale predominates, although sand and sandstone can occur. Carbonaceous fragments are often noted. These inclusions, along with the generally noncalcareous nature of the shale, distinguish the material from the underlying Grayson Formation. The Woodbine exhibits gradational changes, both laterally and vertically, in its lithologic composition that make correlation between even closely spaced borings very difficult. The most detailed description of the Woodbine was developed after excavation of the inspection trench of the left abutment. Plate 58 is a geologic section of the plan of the inspection trench along the left abutment prior to placement of the fill.

(4) Weathering. Chemical weathering (oxidation and hydration) has affected the primary strata at the dam site to varying degrees. The shale and sandy shale of the Pawpaw Formation that comprise the primary strata for most of the embankment section have been only slightly altered. Staining (oxidation) is present to a maximum depth of about 14 feet below the top of primary strata that underlie the upland soils of the right abutment, while the Pawpaw shale beneath the alluvium in the valley section is fresh. In contrast, the sand, soft sandstone and shale of the Woodbine Formation that comprise the left abutment are deeply weathered. The relatively permeable sands and sandstones receptive to percolating waters are generally weathered throughout to the top of the first significant shale beds. Weathering in the shale occurs primarily as oxidation along joints and bedding

planes.

(5) **Ground Water.** Water levels are shown on Plates 44 through 48. Significant quantities of ground water are found in the floodplain alluvium and in the basal sands and gravels of the low level terrace deposits. Lesser quantities occur in joints and fractures in the weathered section of the Pawpaw shale and in the basal portion of the Woodbine Formation near its contact with the underlying Grayson in the left abutment. Prior to impoundment, ground water in the floodplain alluvium occurred at depths of 20-25 feet. During excavation of the inspection trench in the left abutment, water seeps were encountered at the contacts of the more pervious sands and sandstones with the underlying clays (see Plate 58).

c. Engineering Characteristics of the Overburden Materials.

(1) **Outlet Works.** Overburden in the outlet works area was investigated using auger, Denison and Shelby tube samplers. The materials consist of sandy clays (CL and CH) with zones of clayey sands (SC) and gravels (GC-GP). The gravelly zones generally overlay the primary materials. Overburden thickness varies from about 5 to 25 feet along the approach channel, from 8 to 20 feet along the conduit, and from 12 to 45 feet along the discharge channel. Classification and index testing were performed on jar samples taken from various depths in the overburden.

(2) **Embankment.** The overburden materials in the embankment foundation consist of alluvial clays, sands, and gravel strata.

Classification tests, Q, R, and S strength tests, and consolidation tests were performed on Denison barrel samples taken at varying depths in the clay. Classification and index tests were performed on jar samples taken from auger borings and Denison barrel samples obtained from the overburden in the floodplain. The following properties were used for overburden materials in the floodplain:

Moisture content 20%

Dry density 107.5 pcf

<u>Type Test</u>	<u>c tsf</u>	<u>0 Degrees</u>
Q	0.8	3
R	0.1	14
S	0	26

(3) Weak Stratum. The following soil parameters were used for the weak, sandy clay stratum which is located in the foundation near the base of the overburden beneath the floodplain embankment.

Moisture content 23%

Dry density 102.0 pcf

<u>Type Test</u>	<u>c tsf</u>	<u>0 Degrees</u>
Q	0.35 and 0.40	2.5
R	0.1	14
S	0	26

The low, undrained shear strength of this weak stratum is the controlling factor in the stability of the floodplain embankment.

(4) **Spillway.** The broadcrested weir is founded in weathered shale. Overburden along the centerline of the spillway increases from 2 feet in the area of the weir to 7 feet in the approach channel and 4 to 6 feet in the discharge channel. The overburden consists of principally silty clay with some fine sand and locally scattered fine gravels.

d. Engineering Characteristics of the Bedrock Materials.

(1) **Outlet Works.** The primary materials in the outlet works area were investigated using Denison, Shelby tube and core barrel samplers. Boring locations are shown on Plate . Primary foundation materials consist of unweathered clay shales of the Pawpaw Formation. The shales contain interbedded sandstone seams and beds that vary from a few inches to approximately 4 feet in thickness. From station 27+00 to 34+00, a near surface limestone layer was encountered which varied from about 2 to 7 feet in thickness. Laboratory testing was performed on selected samples of primary materials taken from borings along the centerline of the outlet works. Tests performed were classification, index grain size, unconfined compression and Q-triaxial compression tests. The approach channel structure, intake tower, and stilling basin was founded in unweathered shale for which the following parameters were used:

Allowable bearing pressure	8.0 ksf
Shear Strength, ϕ	20°
Cohesion	0

(2) **Embankment.** Laboratory strength tests conducted on samples of primary materials indicate that the shale stratum underlying the overburden through the floodplain has a low to moderately low strength, but its strength increases with depth. Although the strength of the shale is relatively low in the upper portion of the stratum, its strength is greater than that of the overburden; therefore, it is not the governing factor in the stability of the embankment.

(3) **Spillway.** The spillway is founded on interbedded silty shale and soft sandstone of the Pawpaw Formation. The materials are adequate to support the light loads to be imposed.

e. **Unusual or Unanticipated Geologic Conditions Encountered During Construction.** No unusual or unanticipated geologic conditions were encountered during construction.

4. **EXCAVATION PROCEDURES**

a. **Excavation Grades.** Foundation conditions encountered during excavation of the outlet works, inspection trench, cutoff trench, and emergency spillway were about the same as described in the subsurface data in the plans and specifications. The design slopes were achieved without any problems. The only deviation from designed grade lines was overexcavation in the primary materials. In February 1984, overexcavation occurred in the area adjacent to the outlet works conduit, between stations 28+90 and 29+80. The maximum depth of overexcavation was 2 feet. Contractor backfilled the overexcavation with concrete.

b. **Dewatering Provisions.** No ground-water problems of a serious nature were experienced in the outlet works, inspection trench, cutoff trench, or spillway excavations. On occasion, heavy rains partially filled the excavations. Small seeps were present in all the excavations except the spillway and are noted on the drawings. Surface water and the small amount of ground-water seepage experienced were handled by pump and sump operations. See Figures 1 through 6. All concrete and impervious backfill placements were on foundations free of water.

c. **Overburden Excavation.** Overburden materials excavated consisted of residual clay and other clayey materials on the abutments; alluvial clays, silts, sands, and gravels in the floodplain inspection trench and outlet works; and clay and sandy clay with scattered gravel in the spillway area. See Figures 7 through 12. Bulk excavation was done by Caterpillar scrapers. Finished grades were achieved with motor graders. Overburden materials considered suitable were used as random and semicompacted fill.

d. **Rock Excavation.** All rock excavation was accomplished using rippers and scrapers. Much of the weathered shale was used in a manner similar to the overburden; as random or semicompacted fill. Excavation methods were also similar. After bulk excavations of weathered shale by caterpillar scrapers, final grade was accomplished using motor graders. Exposure of weathered or unweathered shale of the Pawpaw Formation was limited to 3 days. See Figures 13 through 20. When this limit was exceeded, the contractor was required to clean the exposed



Figure 1. Outlet Works excavation, showing peripheral ditches controlling ground water.



Figure 2. Same as above



Figure 3. Outlet Works excavation showing peripheral ditches controlling ground water.



Figure 4. Same as above.



Figure 5. Outlet Works excavation showing peripheral ditches controlling ground water.

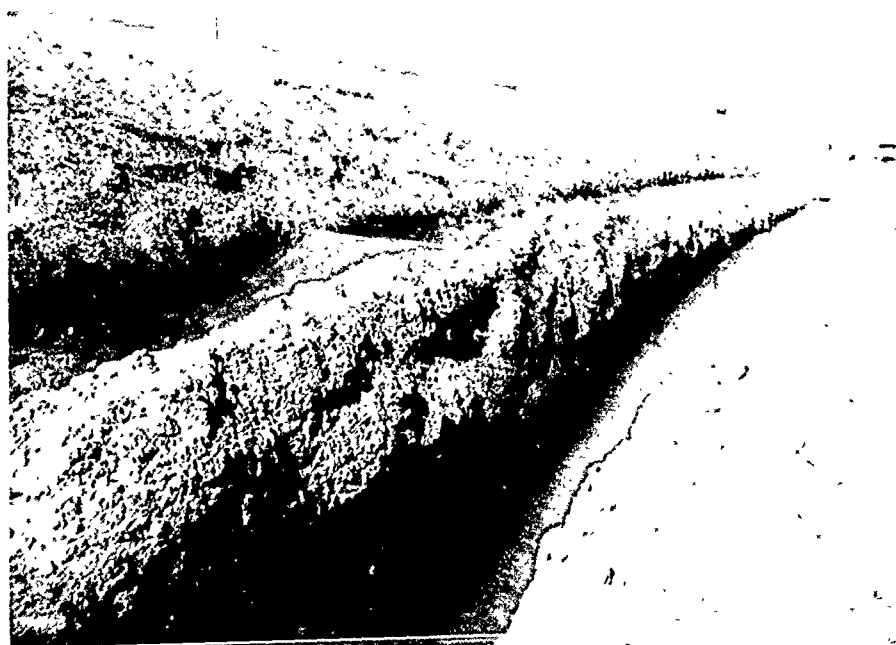


Figure 6. Same as above.

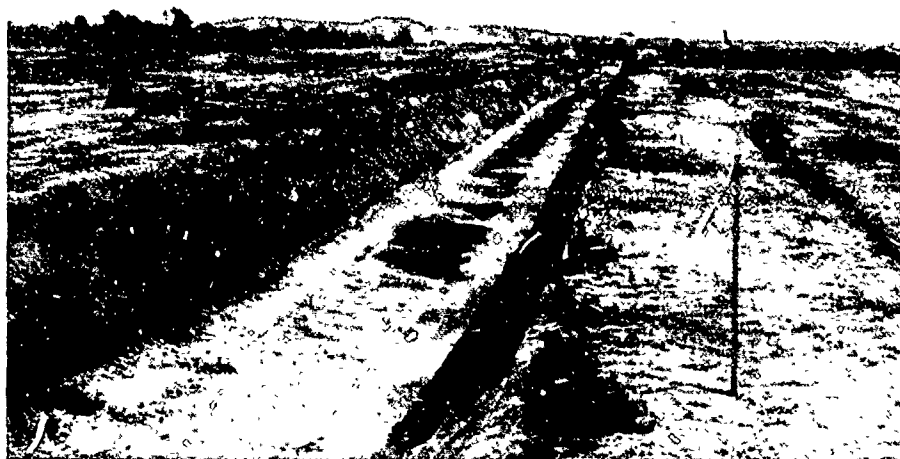


Figure 7. Right Abutment inspection trench looking east (Upstation)



Figure 8. Left Abutment looking east.

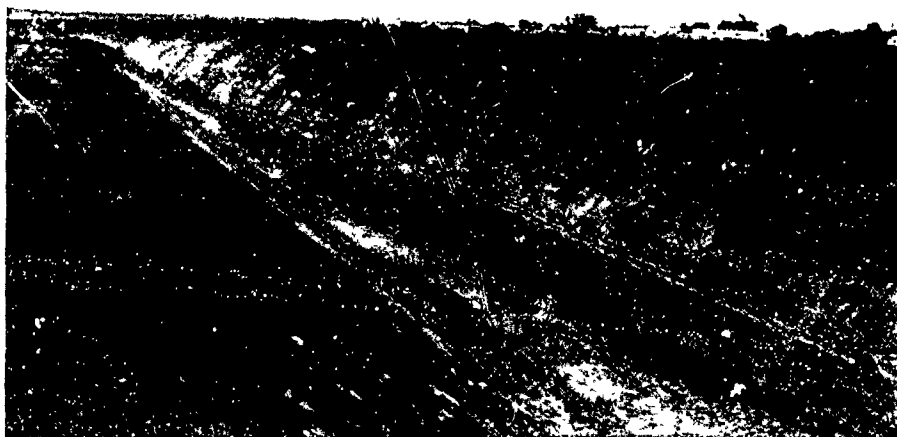


Figure 9. Downstream face of right abutment inspection trench approx. sta. 66+50 to 69+00, looking east (Upstation).



Figure 10. Upstream face of right abutment inspection trench Approx. sta. 66+50 to 69+00, looking east.



Figure 11. Right abutment inspection trench, looking west (downstream).



Figure 12. Same as above.

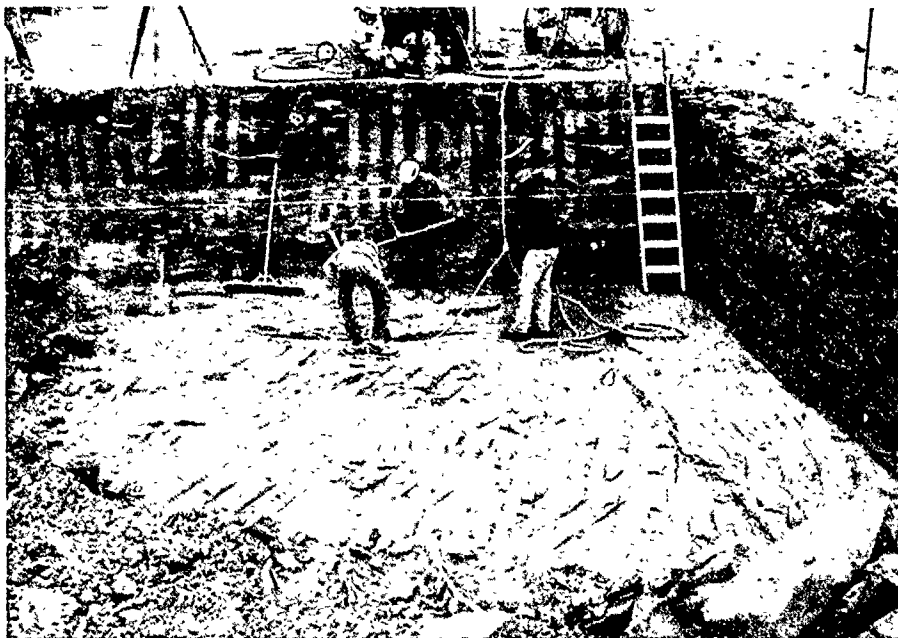


Figure 13. Intake Structure, hand cleaning shale foundation.



Figure 14. Intake Structure, placing re-bar for slab.



Figure 15. Looking Upstream from valve vault, showing fresh shale surface prior to placement of impervious material.

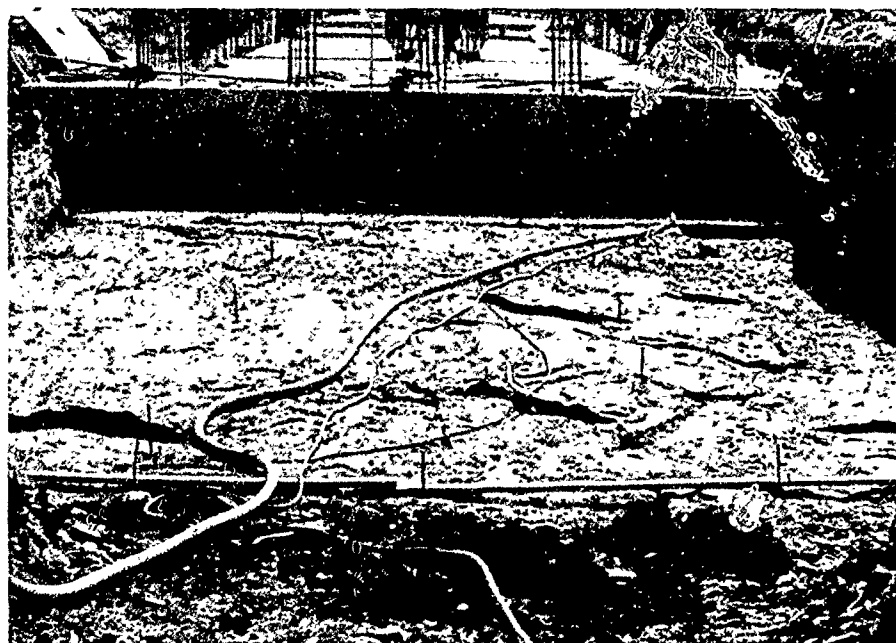


Figure 16. Foundation for approach slab.



Figure 17. Excavation for intake for hydropower conduit at intake structure slab - looking downstream.

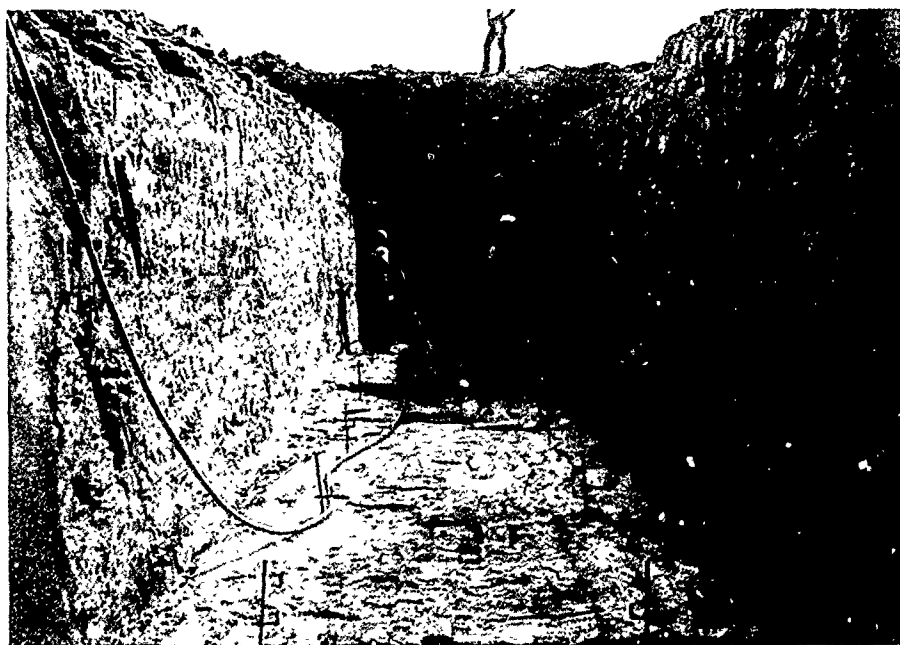


Figure 18. Hydropower conduit - placing gunite, Sta. 29+50-30+00.

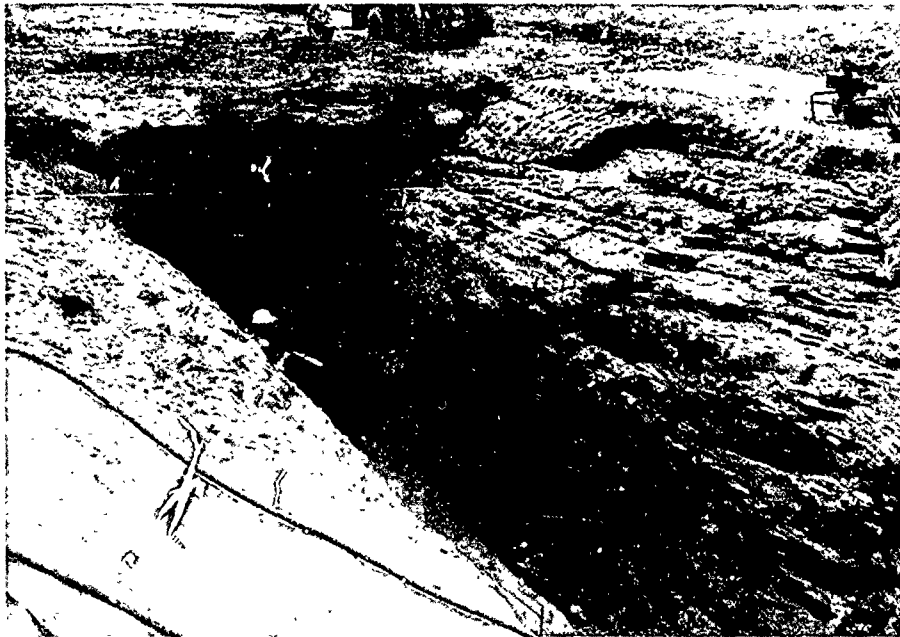


Figure 19. Hydropower conduit, looking downstream,
Sta. 29+20.

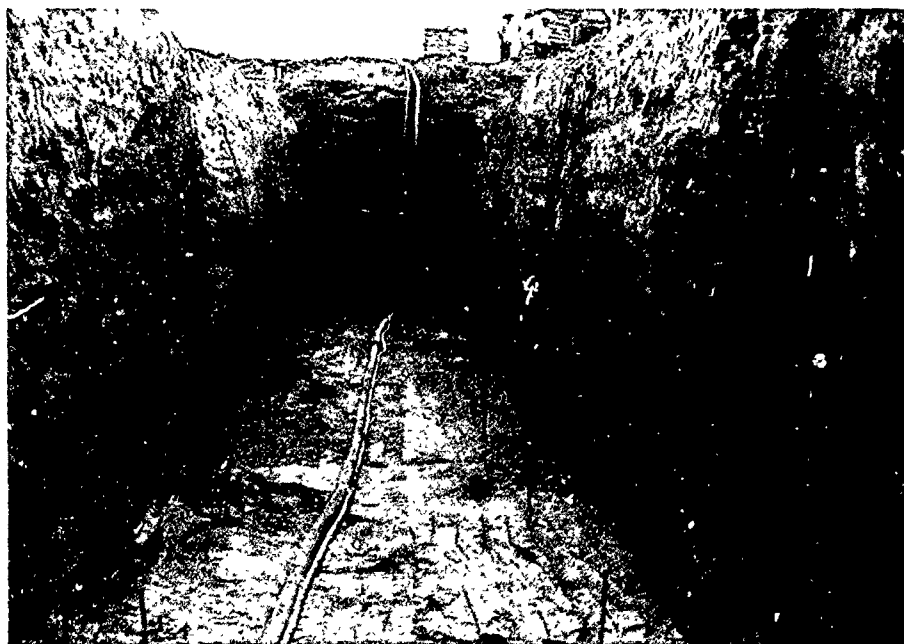


Figure 20. Hydropower conduit, looking downstream,
Sta. 30+10.

face by jackhammer and/or air jetting before protective concrete was placed.

e. **Line Drilling, Presplitting, and Contour Blasting.** No line drilling, presplitting, or contour blasting were performed during the course of construction.

f. **Foundation Preparation.** Clay shale of the Pawpaw Formation forms the majority of the foundation in the outlet works excavation and in the excavation for the sill of the limited-use spillway. See Figures 21 through 29. Primary materials in general were not exposed in cutoff or inspection trench excavations. See Figures 30 and 31. The most predominant material exposed was clay, especially CH clays. Since the clay shale deteriorates upon exposure to air, usually very noticeable within about 3 days, protective sealant or lean concrete (Gunitite) were specified for exposed shale surfaces. See Figures 34, 35, 36, 41, and 42.

g. **Gunitite in Conduit Excavation Walls.** Problems with Gunitite (protective concrete) developed in November 1982 in the hydropower conduit section between Stations 26+63 and 30+85. Excavation of the trench was done between 10 November 1982 and 23 November 1982. Gunitite was applied, as excavation progressed, on the floor and nearly vertical walls of the trench. Inspection on 24 November 1982 revealed numerous horizontal cracks, circular areas where Gunitite has fallen off the wall, and evidence that voids existed behind the Gunitite face. Inspection on 30 November 1982 revealed that deterioration of the Gunitite had greatly

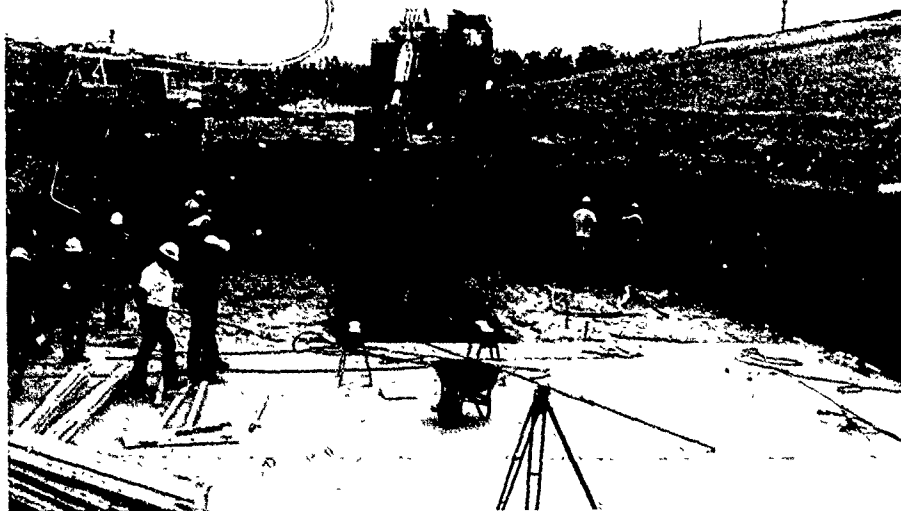


Figure 21. Excavation for hydropower conduit at intake structure slab.



Figure 22. Same as above.

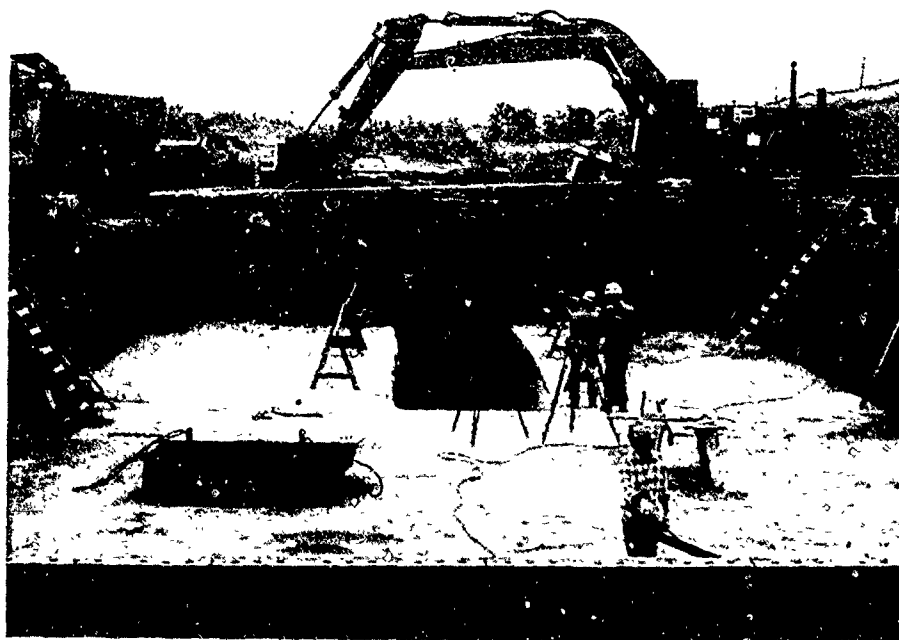


Figure 23. Excavation for hydropower conduit at intake structure slab.

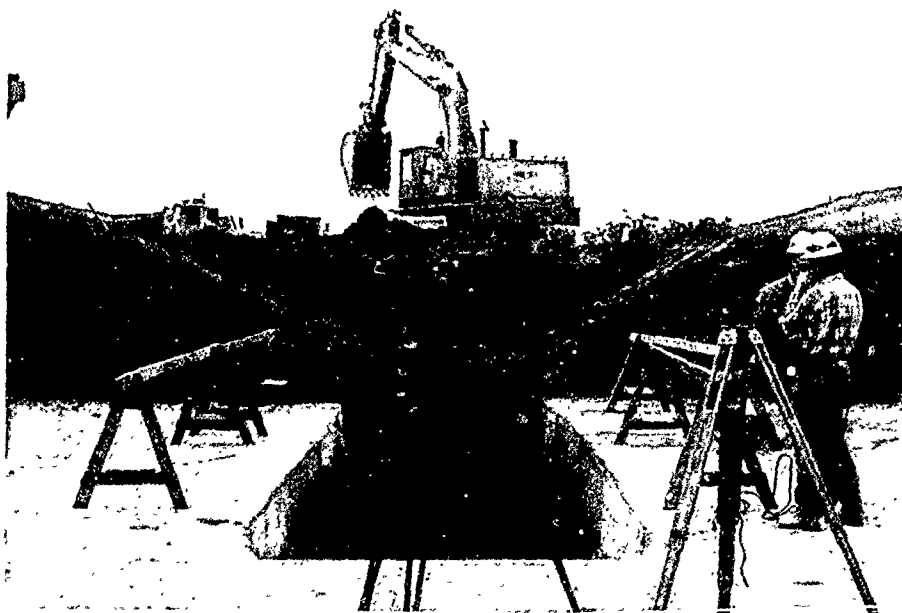


Figure 24. Same as above.



Figure 25. Excavation for hydropower conduit at intake structure slab.



Figure 26. Same as above.

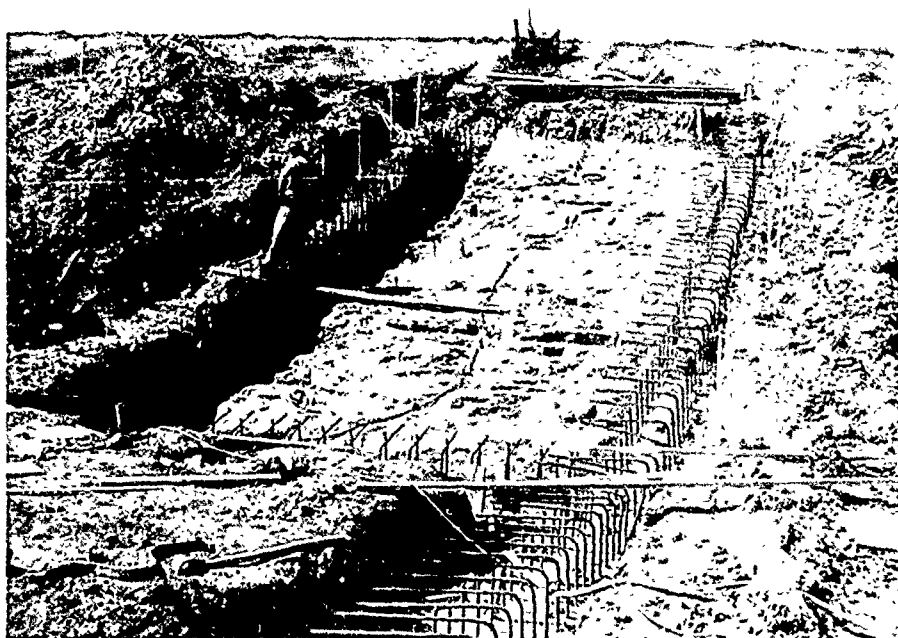


Figure 27. Construction of spillway sill.

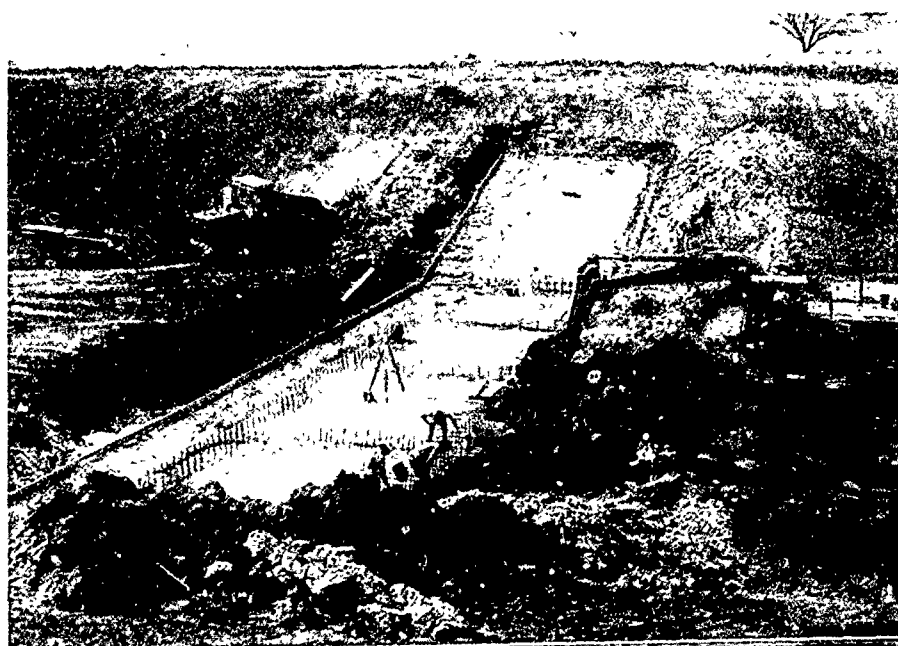


Figure 28. Same as above.



Figure. 29. Spillway - placing concrete footings.



Figure 30. Looking downstation along dam centerline at intersection of embankment centerline and outlet works centerline.

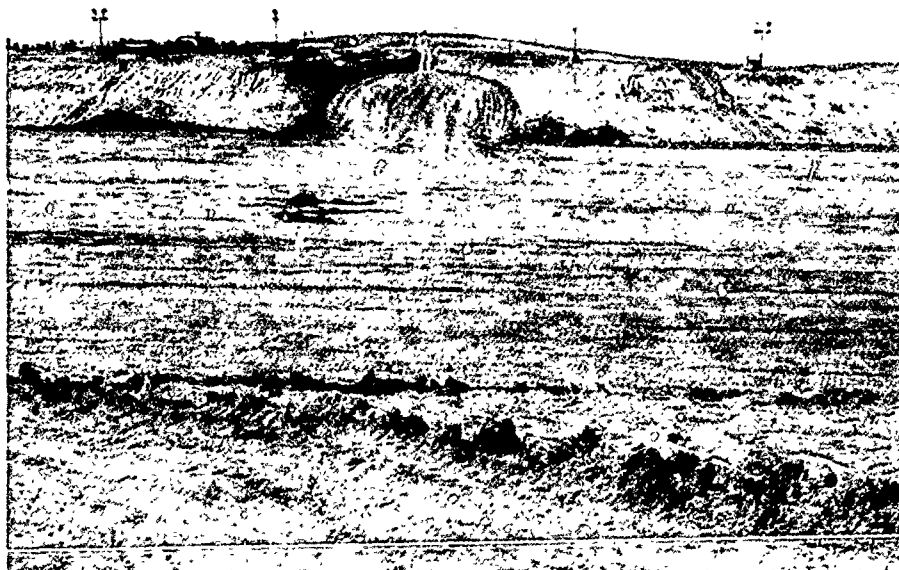


Figure 31. Later view of same area.

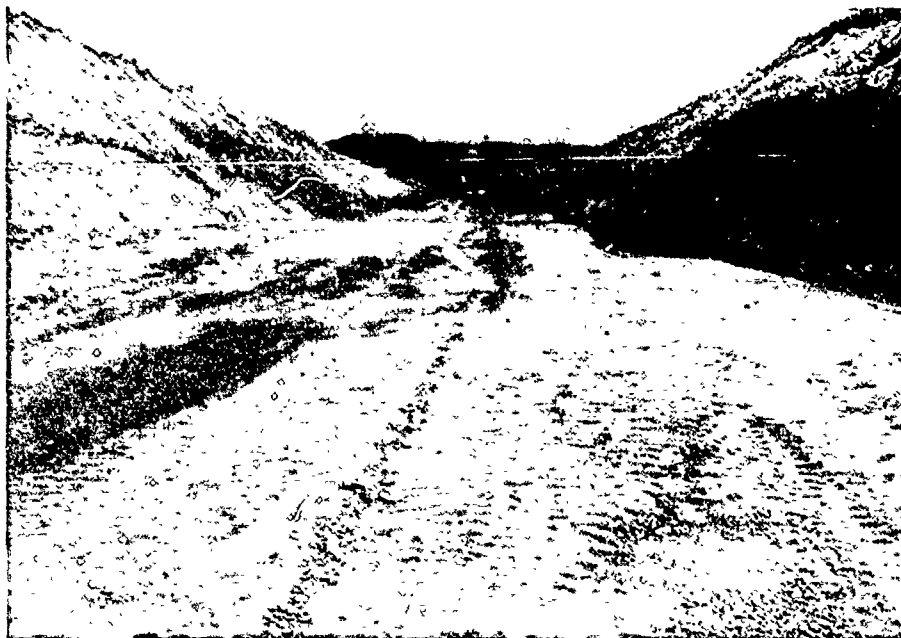


Figure 32. Inspection trench looking upstation (east).



Figure 33. Inspection trench looking upstation.
Sta. 83+00 - 91+00.



Figure 34. Intake structure foundation - spraying aerospray.

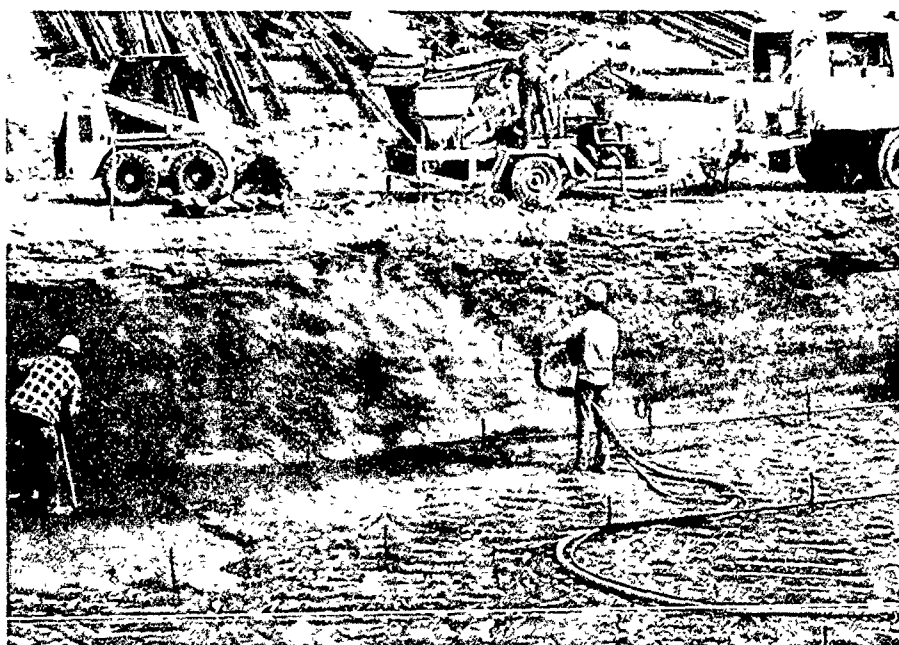


Figure 35. Intake structure foundation - applying gunite.



Figure 36. Intake structure foundation - placing protective concrete.



Figure 37. Forms for intake structure.



Figure 38. Outlet works, left side looking downstream at intake structure wing walls showing fresh shale surface.

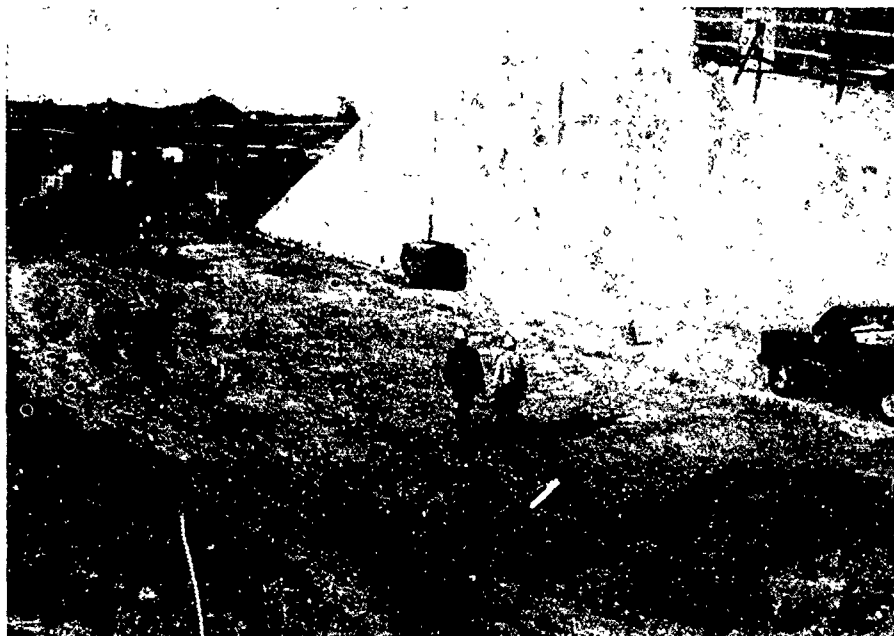


Figure 39. Intake structure, left side looking upstream.
Fresh shale surface prior to placement of impervious.

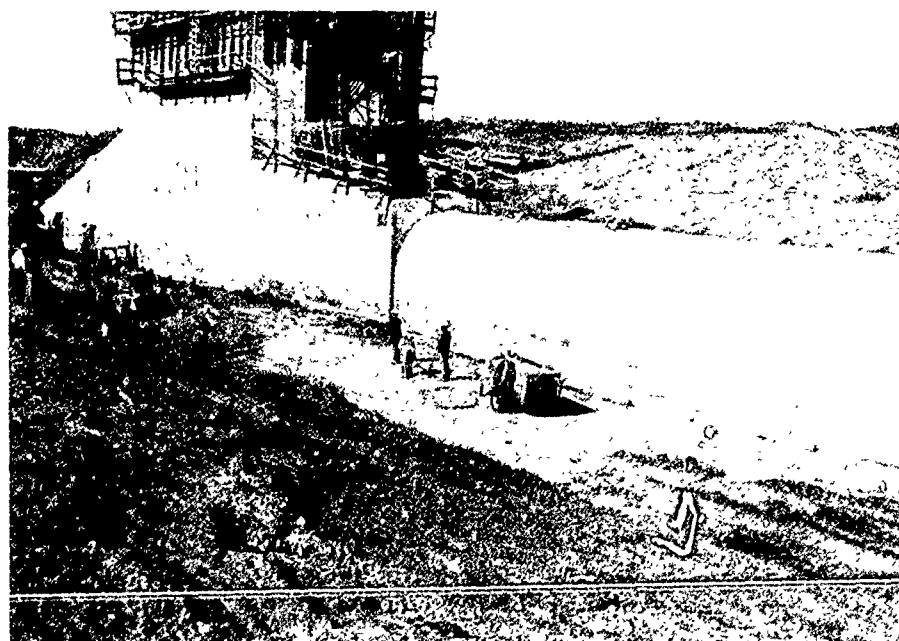


Figure 40. Same as above.



Figure 41. Hydropower conduit excavation showing gunite and aerospray application (looking upstream) Sta. 28+50 - 27+50.



Figure 42. Same as above.

accelerated, apparently because of a heavy rain on 25-26 November 1982. See Figures 43 through 46. From Station 28+25 to 30+85 the Guniting was severely cracked and broken and an estimated 30-foot long section on the east wall of the trench had fallen. Most of the Guniting on both walls in this section appeared loose and ready to fall. Portions of the Guniting, though still in-place, had void space between the Guniting and the rock face. This space could provide a seepage path along the outside of the conduit connected directly to the reservoir pool. A contract modification was signed on 3 December 1982 which stated:

(1) On remainder of penstock excavation (Station 30+85 to Station 34+07), delete pneumatic concrete from the IV: .09 H slopes, and spray these slopes with Aero-spray 70 as often as required to prevent weathering of shale.

(2) Between Stations 28+22 and 30+75 remove all pneumatic concrete which is drummy, cracked, or loose. Spray exposed shale with Aero-spray 70 as often as required to prevent weathering of shale.

(3) All future penstock excavation (Station 30+85 to Station 34+07) and removal of existing pneumatic concrete (Station 28+22 to Station 30+75), will proceed at a rate to accommodate one placement at a time to minimize shale exposure.

The contractor agreed that no more than 3 days would pass between exposure of the clay shale and concrete encasement. On occasions when exposure was more than 3 days, deterioration, consisting of severe drying, cracking and checking, was often noted. Contractor was then

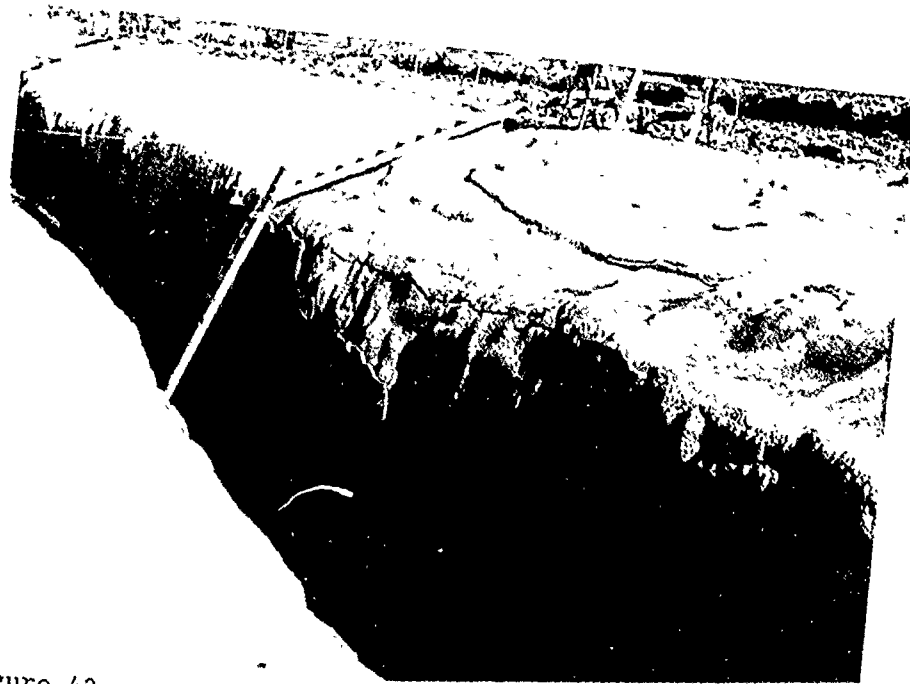


Figure 43. Failure of gunite on hydropower conduit excavation.

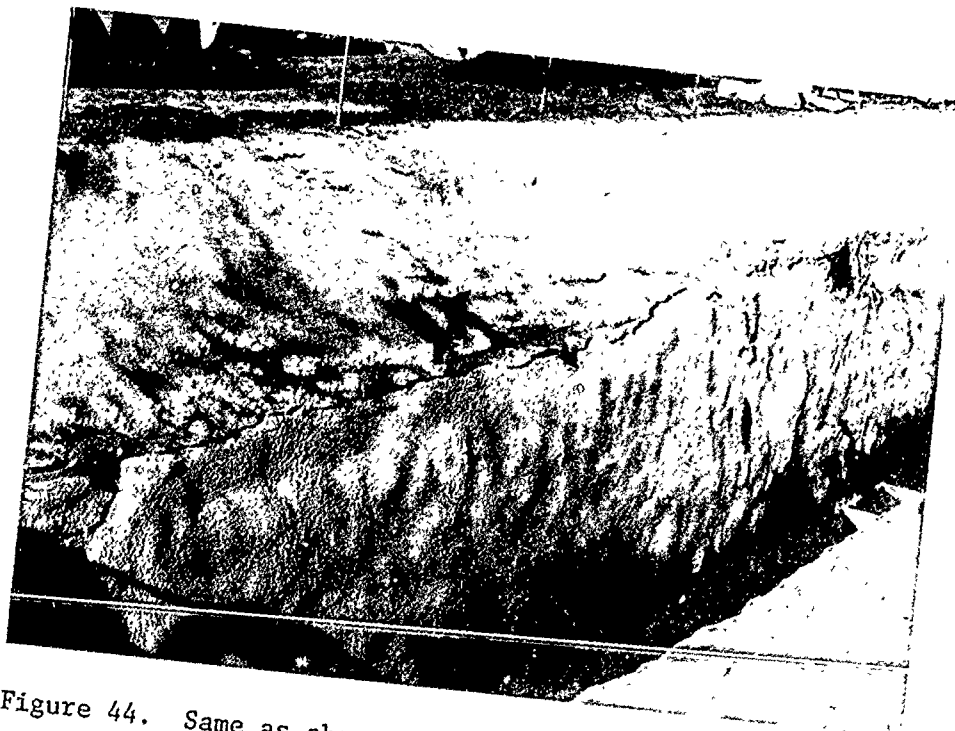


Figure 44. Same as above.



Figure 45. Failure of gunite on hydropower conduit excavation.

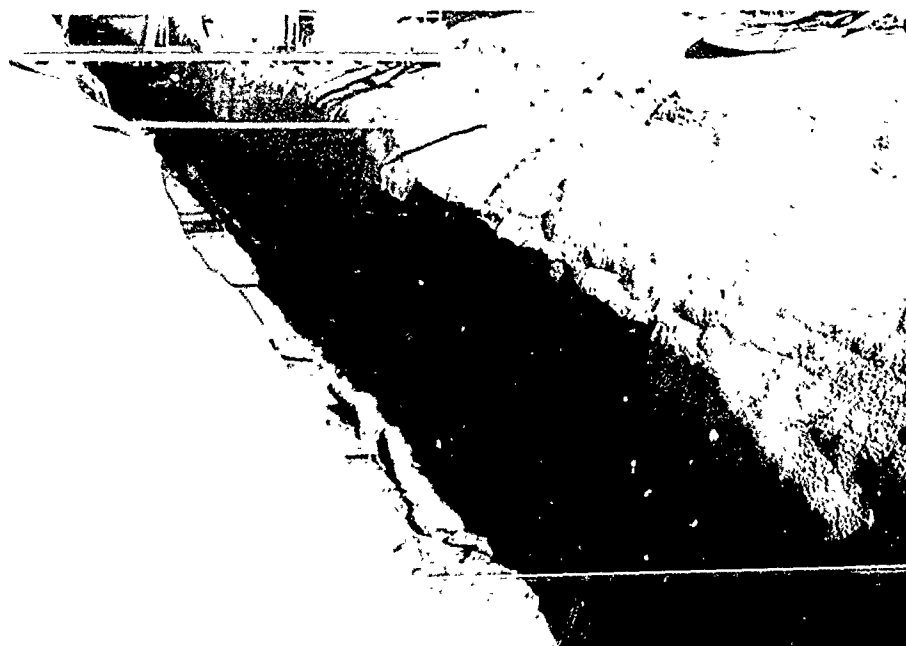


Figure 46. Same as above.

instructed to clean loose and drummy rock by jackhammer and to make final cleanup with compressed air before placement of concrete.

h. Safety Protection Against Slides and Rock Falls. Slopes excavated to design grade were generally not steep enough to require special protection against slides and rock falls.

5. PILE DRIVING AND SPECIAL FOUNDATIONS. No special foundations, such as driven piles, caissons, or drilled piers were utilized.

6. TUNNELS, SHAFTS, AND UNDERGROUND STRUCTURES. The construction of this project did not include any tunnel shafts or underground structures.

7. FOUNDATION ANCHOR TEST. A foundation anchor test was performed 4 April 1983 at Station 34+93.5, 5 feet west of outlet works centerline. See Figures 47 through 50. The surface elevation was 531.3. The test was performed in the chute foundation area on a 12-foot anchor with test results shown on pages 19 and 20.

8. CHARACTER OF FOUNDATION.

a. General. The limited service spillway is founded in weathered clay shale of the Pawpaw Formation of Lower Cretaceous age. The outlet works conduit, chute, and stilling basin are founded on unweathered clay shale of the Pawpaw Formation. Except for the left abutment, the inspection trench was almost entirely in overburden with clays and silty clays predominating. The Woodbine Formation, the basal formation of the Upper Cretaceous, was exposed in the inspection trench in the left abutment. It consists of weathered reddish-brown sands, clays,



Figure 47. Pullout test. Stilling Basin.

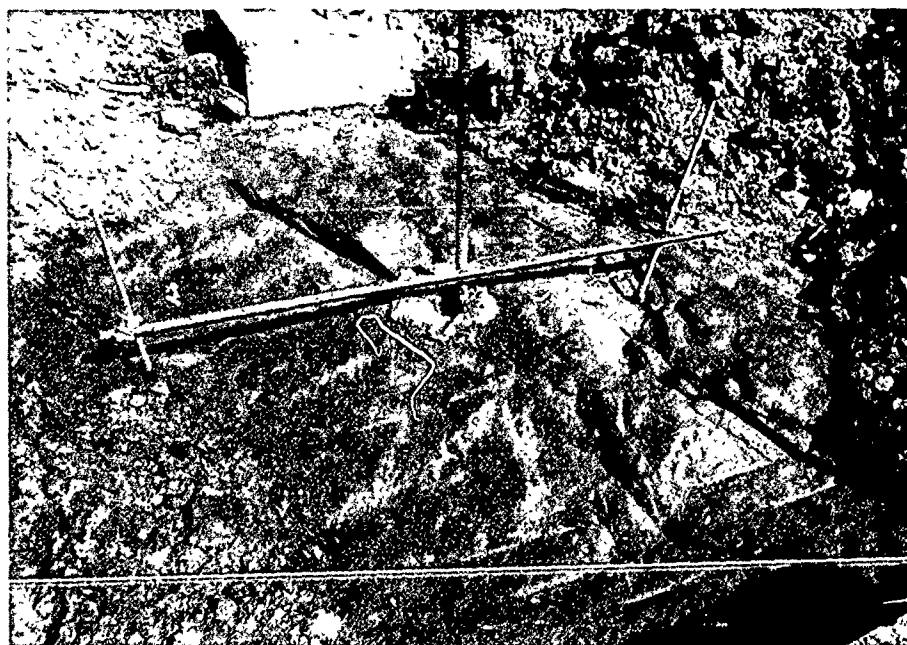


Figure 48. Same as above

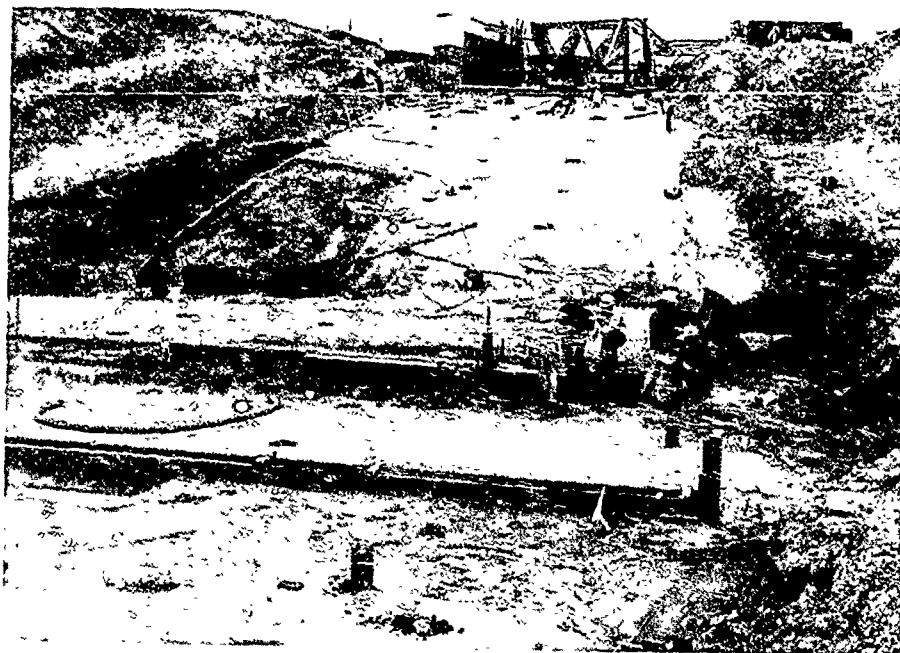


Figure 49. Pullout test. Stilling basin.



Figure 50. Same as above.

TEST NO. 1

<u>Time</u>	<u>Load In Tons</u>	<u>PSI</u>	<u>Deflection In Inches</u>
1044	0	0	.000
1044	5	930	.017
1049	5	930	.017
1050	12.7	2350	.026
1105	12.7	2350	.026
1105	17.7	3150	.035
1110	22.7		.046
1115	22.7		.046
1115	27.7		.059
1120	Stopped test - sag in "I" beam causing deflection in anchor bar.		

TEST NO. 2

<u>Time</u>	<u>Load In Tons</u>	<u>PSI</u>	<u>Deflection In Inches</u>
1137	5	930	.003
1142	5	930	.003
1142	12.7	2350	.015
1157	12.7	2350	.016
1157	17.7	3150	.023
1201	17.7	3150	.023
1201	22.7	4050	.034
1207	22.7	4050	.034
1207	27.7	4950	.045
1212	27.7	4950	.046
1212	32.7	5850	.060
1216	32.7	5850	.067
1216	36.0	6600	.075
1221	36.0	6600	.085
1222	32.7	5850	.085
1226	32.7	5850	.085
1226	27.7	4950	.078
1231	27.7	4950	.077
1231	22.7	4050	.068
1236	22.7	4050	.068
1236	17.7	3150	.057
1241	17.7	3150	.057
1241	12.7	2350	.043
1246	12.7	2350	.043

TEST NO. 2
(cont'd)

<u>Time</u>	<u>Load In Tons</u>	<u>PSI</u>	<u>Deflection In Inches</u>
1246	5	930	.018
1251	5	930	.018
1251	0	0	.000
1300	0	0	.000
1300	5	930	-.012
1305	5	930	-.012
1305	12.7	2350	.000
1310	0	0	.000
1310	5	930	-.006
1315	5	930	.000
Bar deflecting downward and horizontal under initial load.			
1320	5	930	.000
1320	12.7	2350	.016
1335	12.7	2350	.016
1335	5	930	.003
1340	5	930	.003
1340	0	0	-.006
1341	5	930	.001
1346	5	930	.001
1346	10	1820	.011
1351	10	1820	.011
1351	15	2750	.021
1356	15	2750	.023
1356	20	3650	.038
1401	20	3650	.038
1401	25	4550	.049
1406	25	4550	.050
1406	30	5450	.064
1411	30	5450	.064
1411	35	6300	.078
1416	35	6300	.083
1416	40	7200	.107
1421	40	7200	.109

Stop Test

and sandstones ranging from soft and friable to moderately hard.

b. **Character of Overburden Materials.** Overburden materials comprise the foundation for the embankment, in the outlet works approach and discharge channels, and in the approach and discharge channels for the spillway. Overburden materials exposed in the inspection trench and cutoff trench consist of alluvial clays, silts, sands, and gravels in the floodplain between Stations 105+00 and 136+00, and residual overburden on the abutments. Residual overburden consisting of clay and silty clay was exposed in the approach and discharge channels for the spillway. The outlet works approach and discharge channels were excavated in fluvial terrace and floodplain alluvial materials consisting of clay, sand, silt, and gravel.

c. **Character of Primary Materials.** The Pawpaw Formation comprises much of the foundation and was exposed in the outlet works and the spillway excavation. The Pawpaw is relatively level and finished grade was often on or near bedding planes. See Figures 13, 16, and 18. In the outlet works foundation, the clay shale is generally soft to moderately hard, unweathered, gray to dark gray and thin to medium bedded with scattered sandy seams and occasional sandstone seams north of Station 27+00. South of station 27+00 the clay shale contains up to 50 percent fine-to-medium grained sandstone and sandy seams. The base of the sandy phase was encountered at elevation 523, Station 36+15 in the chute foundation. A 2- to 3-inch thick fossiliferous zone was exposed near the base of the chute at elevation 520.0. Excavation,

cleaning of shale surfaces, and placement of fill are shown in Figures 51 through 64. The stilling basin foundation surface was described as shale, soft, slightly sandy with occasional sandy pockets and zones, fossiliferous, gray. See Figures 63 and 64.

The sill foundation for the limited use spillway was excavated down to a sandy, stiff, yellowish-brown to light gray clay, underlain by about 3 feet of gravelly clay. The edges and narrow sections in the middle, horizontal part of the foundation were keyed into weathered shale of the Pawpaw Formation. The approach and discharge channels were excavated in sandy clay. See Figures 27, 28, and 29.

9. FOUNDATION TREATMENT. No grouting was necessary at the project and no dental concrete or broom grouting were utilized.

10. FOUNDATION INSTRUMENTATION.

a. General. The instrumentation program at Ray Roberts Dam was designed to monitor five basic areas which are discussed below. A plan of instrumentation is shown on Plate 57. The following descriptions are taken from "Periodic Inspection No. 1, Ray Roberts Lake, July 1987."

(1) Initial Embankment and Closure Section. Nineteen piezometers were installed to monitor pore pressure development in the floodplain foundation during construction of the initial embankment and closure section. Settlement gages (12 deep settlement plates and 3 foundation surface settlement plates) were installed to monitor vertical movement of the foundation in the floodplain, and 8 surface

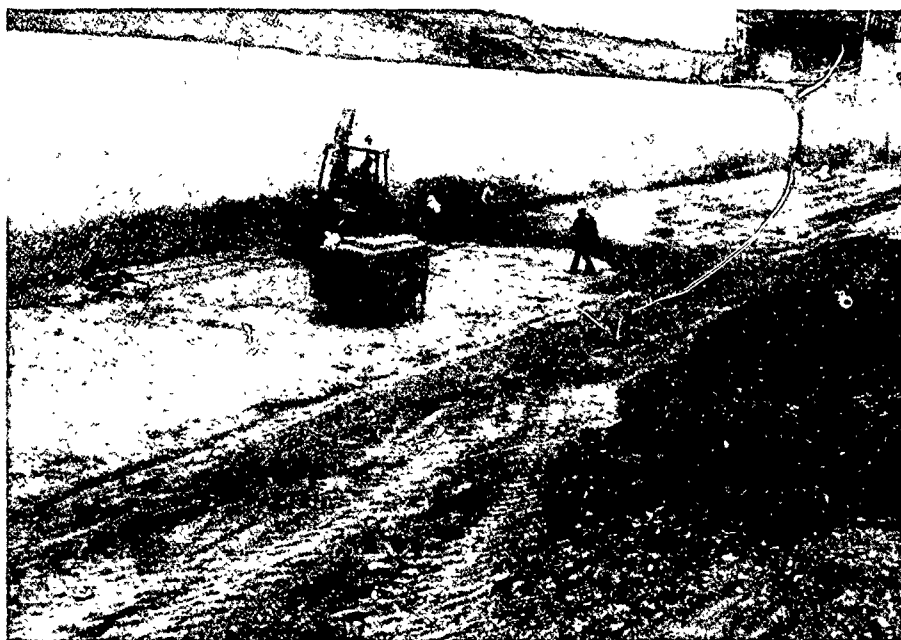


Figure 51. Outlet works, left side looking upstream. Fresh shale surface prior to placement of impervious material.



Figure 52. Same as above.

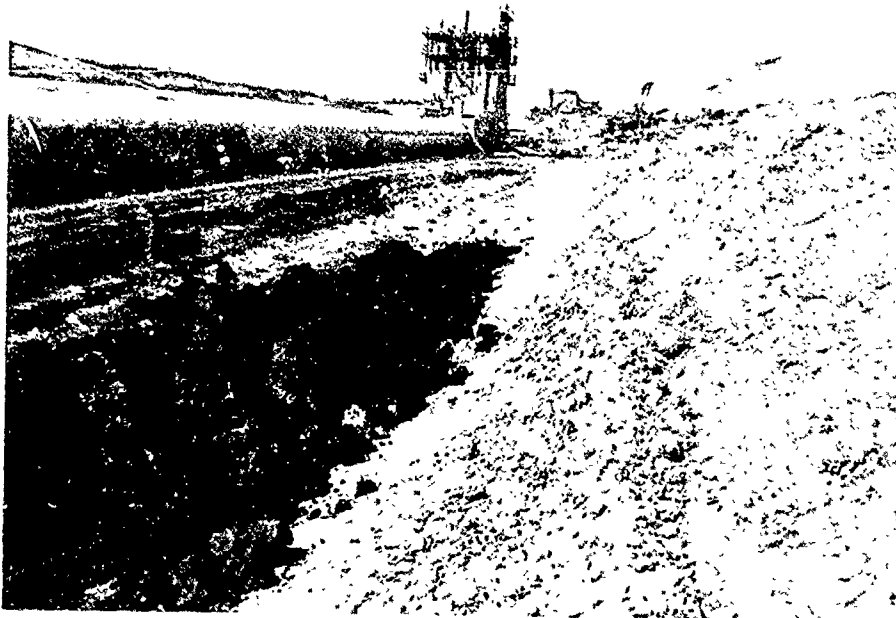


Figure 53. Outlet works conduit, left side, looking upstream. Placing fill on fresh shale surface.

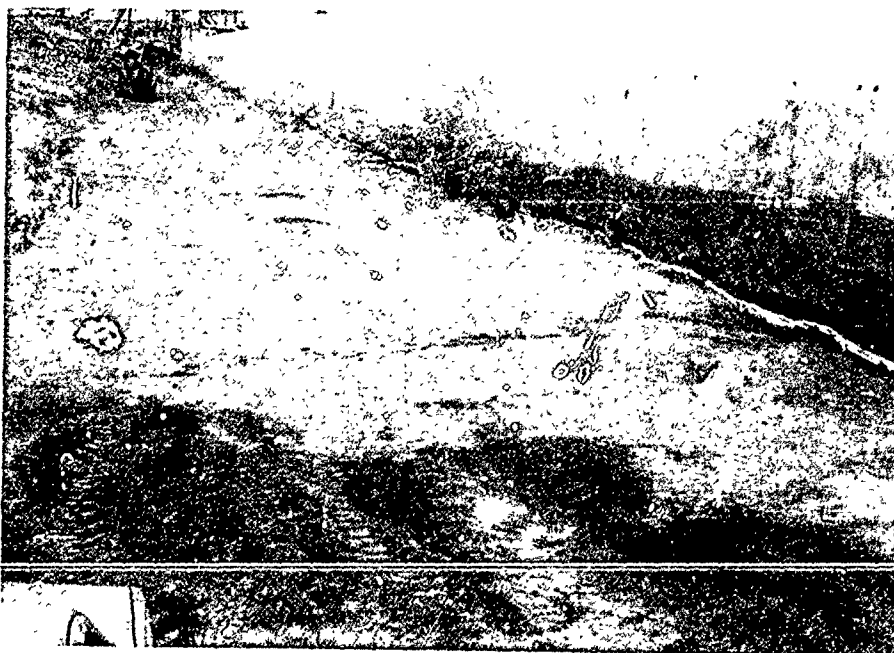


Figure 54. Outlet works conduit, right side, looking upstream. Fresh shale adjacent to conduit.

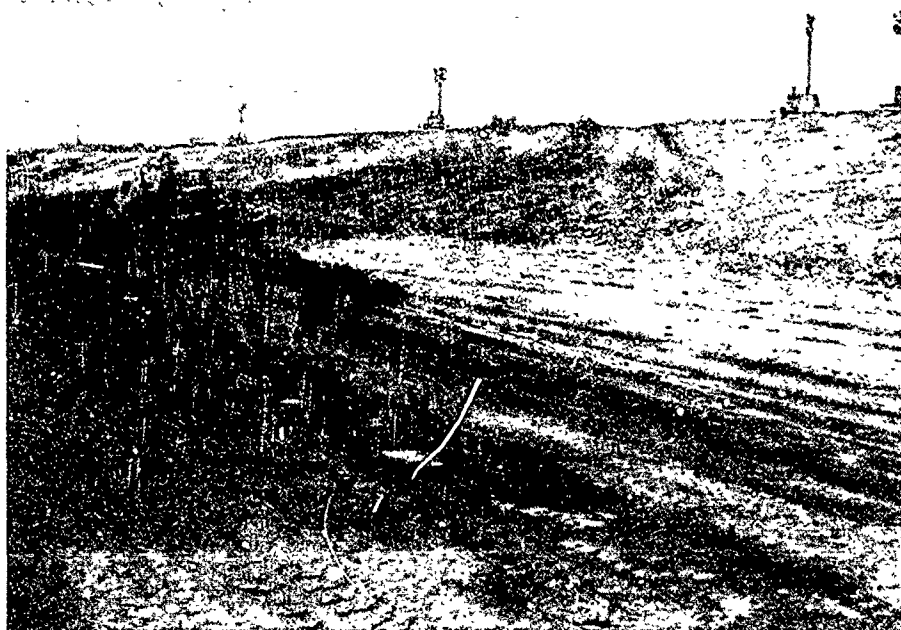


Figure 55. Outlet works excavation, right side looking downstream. Placing fill on fresh shale surface.



Figure 56. Outlet works, right side, looking upstream. Fresh shale surface.



Figure 57. Outlet works, right side looking upstream. Cleaning shale surface in increments prior to placement of fill.

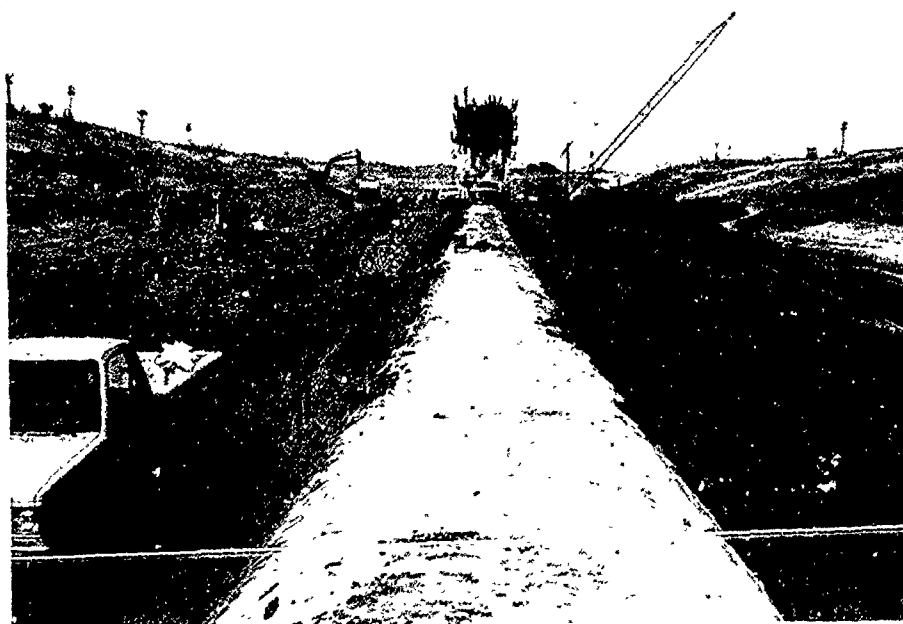


Figure 58. Outlets works conduit, looking upstream.



Figure 59. Outlet works looking downstream from tower.



Figure 60. Same as above.



Figure 61. Outlet works, right side, looking downstream. Cleaning shale surface prior to placement of fill.



Figure 62. Same area as above.



Figure 63. Stilling basin. Spraying aerospray.

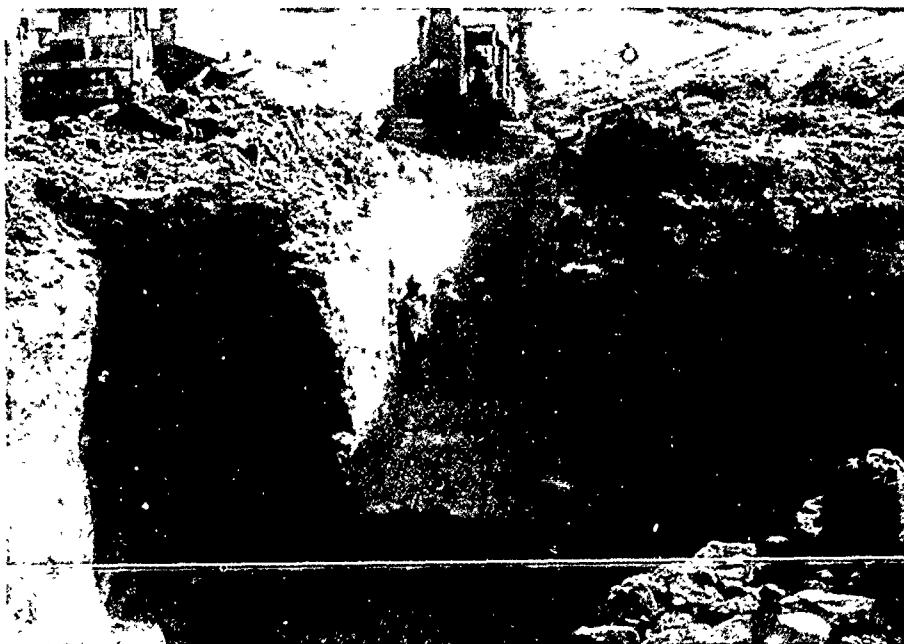


Figure 64. Excavation for discharge from valve vault.

reference marks were provided to monitor embankment movement. Twelve inclinometers were installed to measure lateral displacement of the foundation during construction of the initial embankment and closure section. Of primary concern in planning the instrumentation program was the performance of the initial embankment which was designed to preload and consolidate the floodplain soils.

(2) **Left Abutment.** Nine piezometers were installed to monitor potential seepage effects at the left abutment (the upper portion of the abutment consists of pervious strata) including uplift pressures acting on the downstream portion of the embankment.

(3) **Embankment Underseepage.** Twenty-six seepage piezometers were installed in the embankment foundation to monitor underseepage.

(4) **Outlet Works.** To monitor movement of the outlet work structure, reference pins were installed within the conduit, on the stilling basin walls, and on the service bridge.

(5) **Embankment Crest.** A set of embankment station monuments has been installed along the downstream side of the crest to monitor post-construction settlement.

b. **Schedule of Instrumentation Reading.** Instrumentation located at the project will be read by CESWF-ED-G personnel according to the following schedule, or more frequently, if deemed necessary.

- o Piezometers - quarterly
- o Inclinometers - annually
- o Seepage Interceptor - monthly and when pool reaches 580, 590 600, and 632.5

- o Settlement Gages - quarterly and when pool reaches 580, 590, 600, and 632.5
- o Outlet Works Reference Pins - semiannually
- o Embankment Reference Marks - quarterly

c. **Settlement Plates and Deep Settlement Plates.** Settlement Plates SP-1 through SP-3, and deep settlement Plates DSP-1 through DSP-12 were installed in the floodplain foundation prior to and during initial embankment construction to monitor foundation settlement. Settlement plates consist of a 36-inch square, $\frac{1}{4}$ -inch thick steel plate placed within the foundation materials and welded to a steel riser pipe extended through the embankment fill.

d. **Inclinometers.** I-1 through I-12 were installed within the floodplain embankment foundation prior to construction of the initial embankment to monitor horizontal deflection within the foundation. To provide a fixed frame of reference, all inclinometers were anchored in the primary clay shale. Inclinometers consist of a 3.34-inch diameter grooved ABS casing manufactured by Slope Indicator Company, Seattle Washington. Inclinometers were extended through the fill and steel casing.

e. **Piezometers.** Piezometers P-1 through P-43b have been installed within the embankment foundation materials to monitor foundation performance during construction and after impoundment. Open system piezometers utilizing porous plastic tips as manufactured by Slope Indicator Company, Seattle Washington, were installed using 3/8-inch diameter PVC risers and extended through the fill with steel casing.

Piezometers P-1 through P-19 were installed within the floodplain embankment foundation prior to construction of the initial embankment to monitor excess pore pressure development during construction. After embankment completion, piezometers P-20 through P-36 were installed on the downstream toe and slope within the sands and gravels overlying the shale. Piezometers P-37 through P-43b were installed after embankment completion, within the sandy abutment materials. All Piezometers (P-20 through P-43b) will monitor seepage within the foundation materials during and after reservoir filling.

f. **Surface Reference Marks.** Reference marks consisting of a brass monument, set into a 6-inch diameter pipe filled with concrete, were installed within the floodplain embankment to a depth of 5 feet to monitor vertical movement.

g. **Reference Pins.** Reference pins were installed along the outlet works conduit invert, stilling basin monolith walls, and service bridge. Reference pins which consist of bronze bolts embedded in concrete are used to monitor vertical movement of the monolith or slabs, and relative movement between monoliths or slabs.

h. **Seepage Interceptor System.** A seepage interceptor system has been installed within the left abutment embankment foundation to collect underseepage. The discharge is currently being monitored to record the normal ground-water flow. Flow from the system will be monitored, along with piezometers P-37 through P-43b, during impoundment when the pool reaches elevation 580, 590, 600, 620, and 632.5.

11. POSSIBLE FUTURE PROBLEMS. At the time foundations were approved and the dam completed in October 1986, no potential for future problems was apparent. The first periodic inspection was performed in July 1987. By that time several minor skin slides had occurred in the spillway approach channel slope. It was concluded that this problem could be easily remedied. Other minor problems are addressed in "Periodic Inspection Report No. 1, July 1987." The dam is considered to be in good general condition.

12. RECORD OF FOUNDATION APPROVAL. A record of the date when each section of the outlet works foundation was approved is shown on Plate 58. Records of approval of final foundation grades were kept for all foundations on which concrete was to be placed. The foundation for the emergency spillway was approved as a unit on 11 February 1984.



Figure 65. Outlet works, right side looking downstream. Cleaning shale surface in increments prior to placement of fill.



Figure 66. Placing fill.



Figure 67. Outlet works. Placing fill.



Figure 68. Outlet works backfill, looking downstream.



Figure 69. Excavation for valve vault.

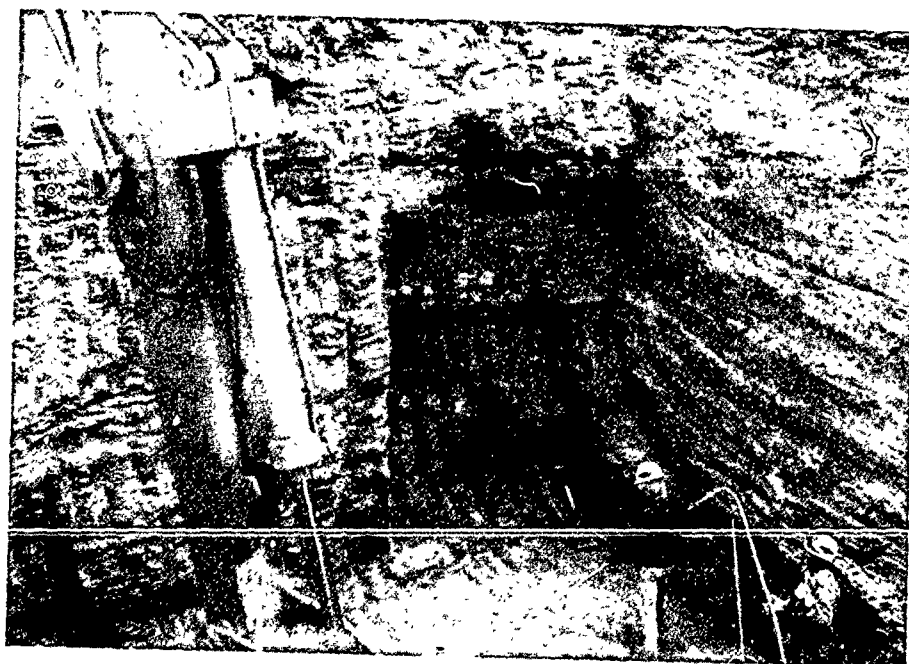


Figure 70. Same as above.

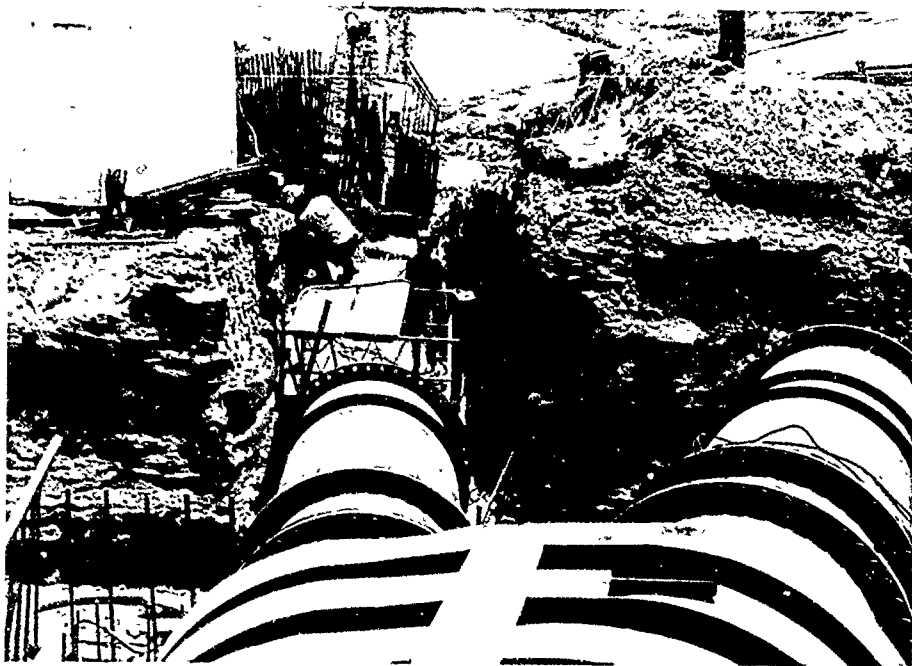


Figure 71. Discharge pipes from valve vault.

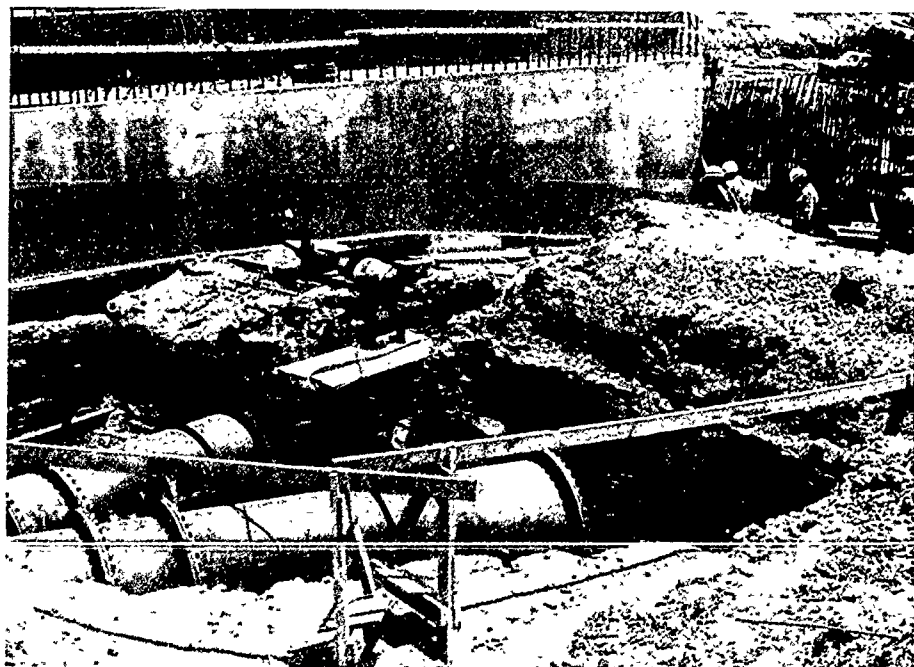
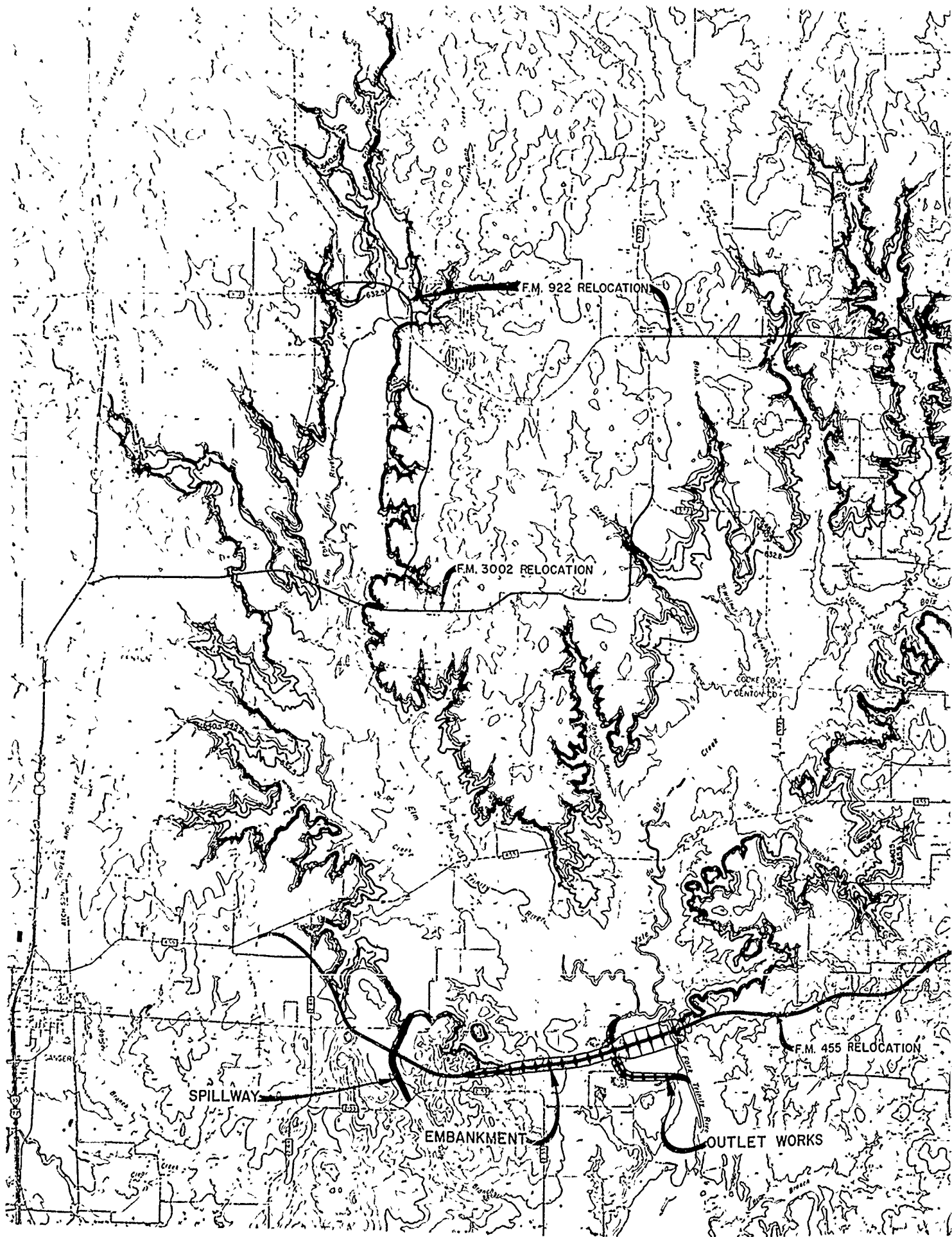
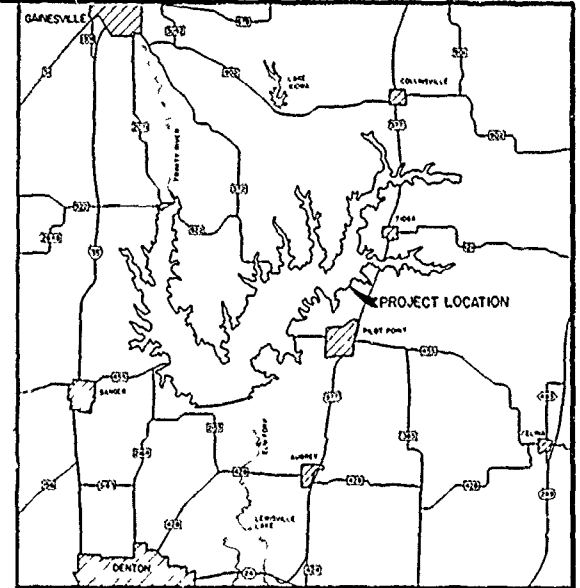
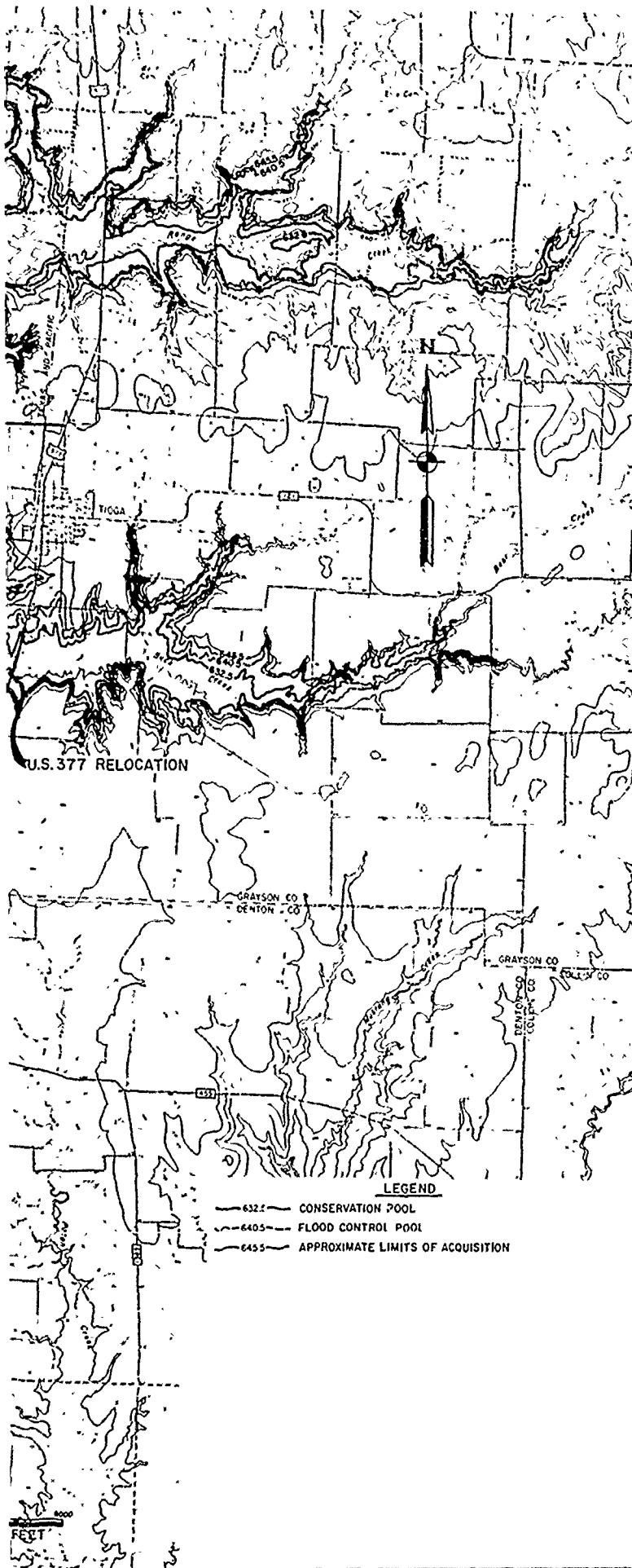


Figure 72. Same as above.





VICINITY MAP
SCALE: 1 INCH = 4 MILES APPROX.

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<p>DESIGNED BY: _____</p>			
<p>DRAWN BY: _____</p>			
<p>REVIEWED BY: _____</p>			
<p>SUBMITTED BY: _____</p>			
<p>INVITATION NO. _____</p>		<p>DATE: _____</p>	
<p>CONTRACT NO. _____</p>			

RAY ROBERTS LAKE
 ELM FORK, TRINITY RIVER, TEXAS
FOUNDATION REPORT
LAKE MAP AND VICINITY MAP

2,128,000

2,130,000

2,132,000

616,000

SPILLWAY

614,000

612,000

610,000

FM 455 RELOCATIONS
(BY OTHERS)

CULP

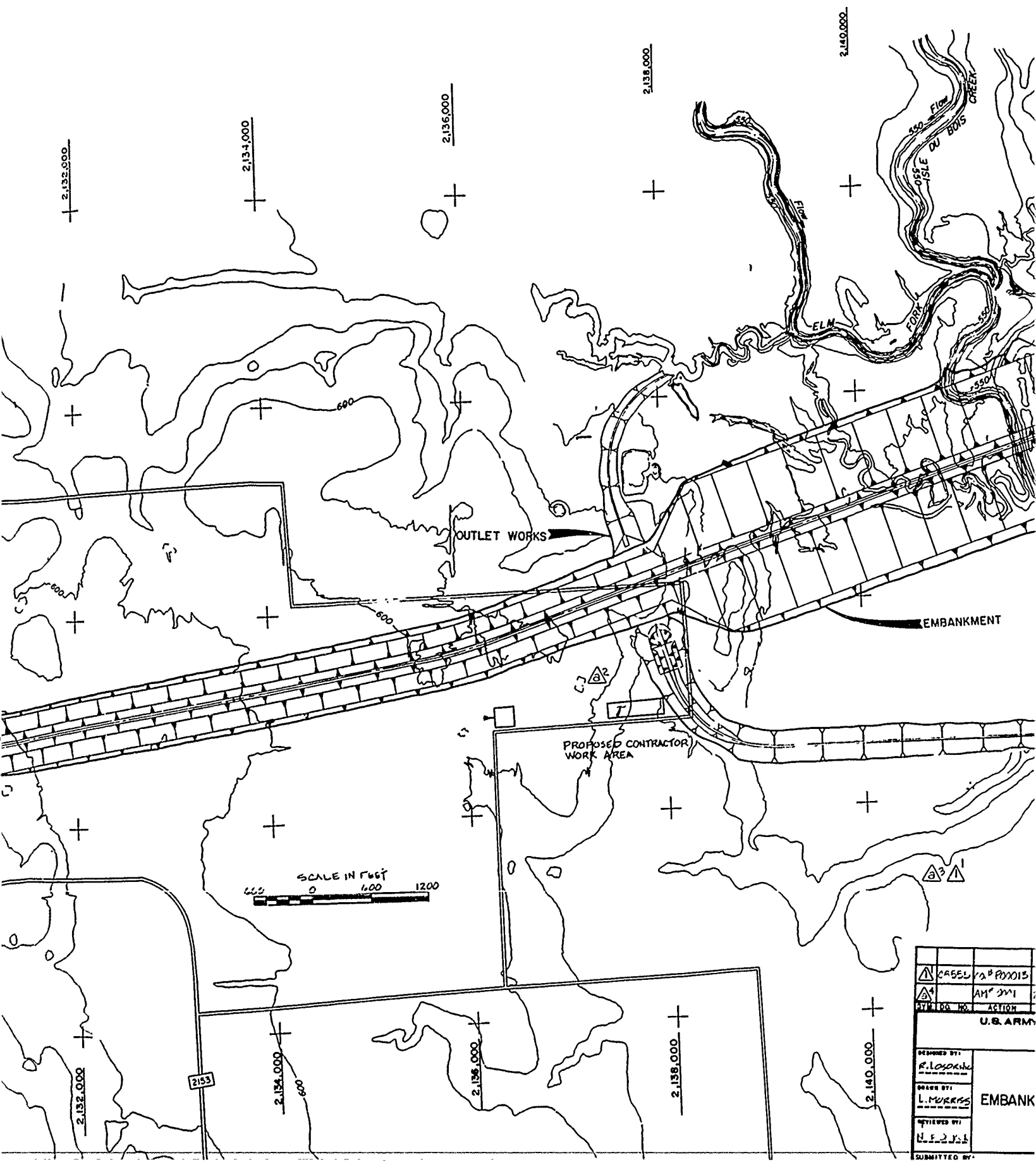
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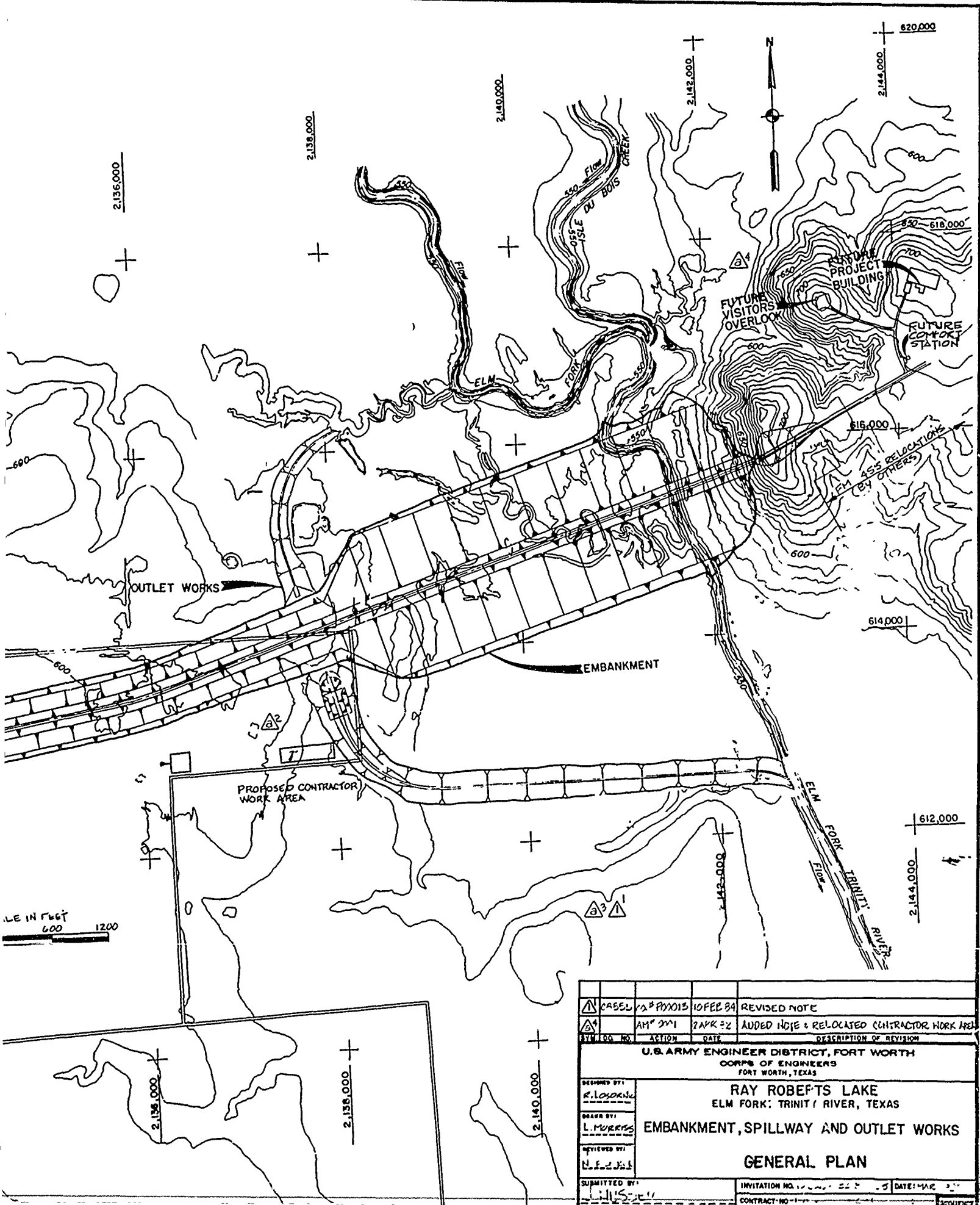
2,128,000

2,130,000

2,132,000



△	CASEL	128 P00015
△	AM	3M1
△	DA	NO ACTION
U.S. ARMY		
DESIGNED BY: R. LOSORKE		
DRAWN BY: L. MURRES		
REVIEWED BY: H. E. J. J.		
SUBMITTED BY:		
EMBANK		



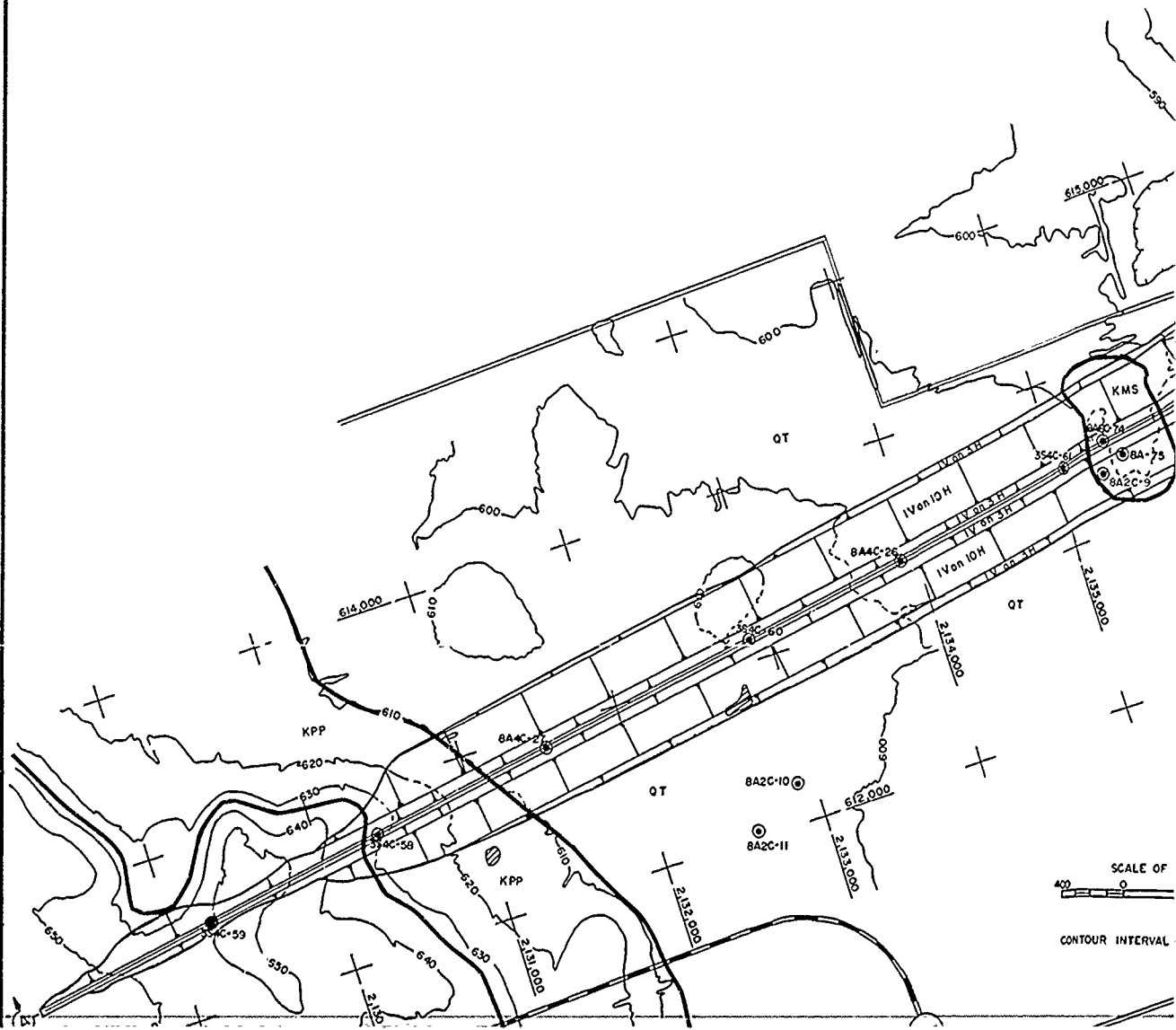
LEGEND

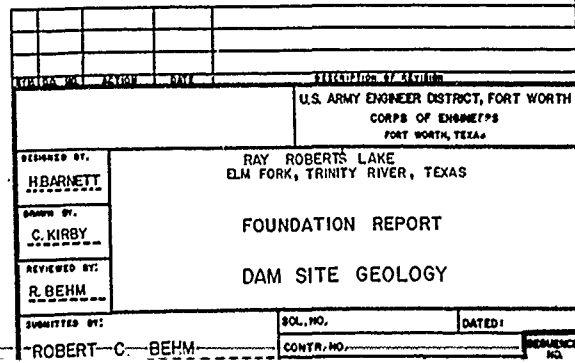
- 3F 3-INCH FISHTAIL BORING
 8A 8-INCH AUGER BORING
 3S 3-INCH SHELBY TUBE
 4C 4-INCH CORE BORING
 6C 6-INCH CORE BORING
 6U 6-INCH DENISON BORING
 COUNTY ROAD (GRAVEL)
 FARM TO MARKET ROAD (PAVED)
 GRAVEL PIT

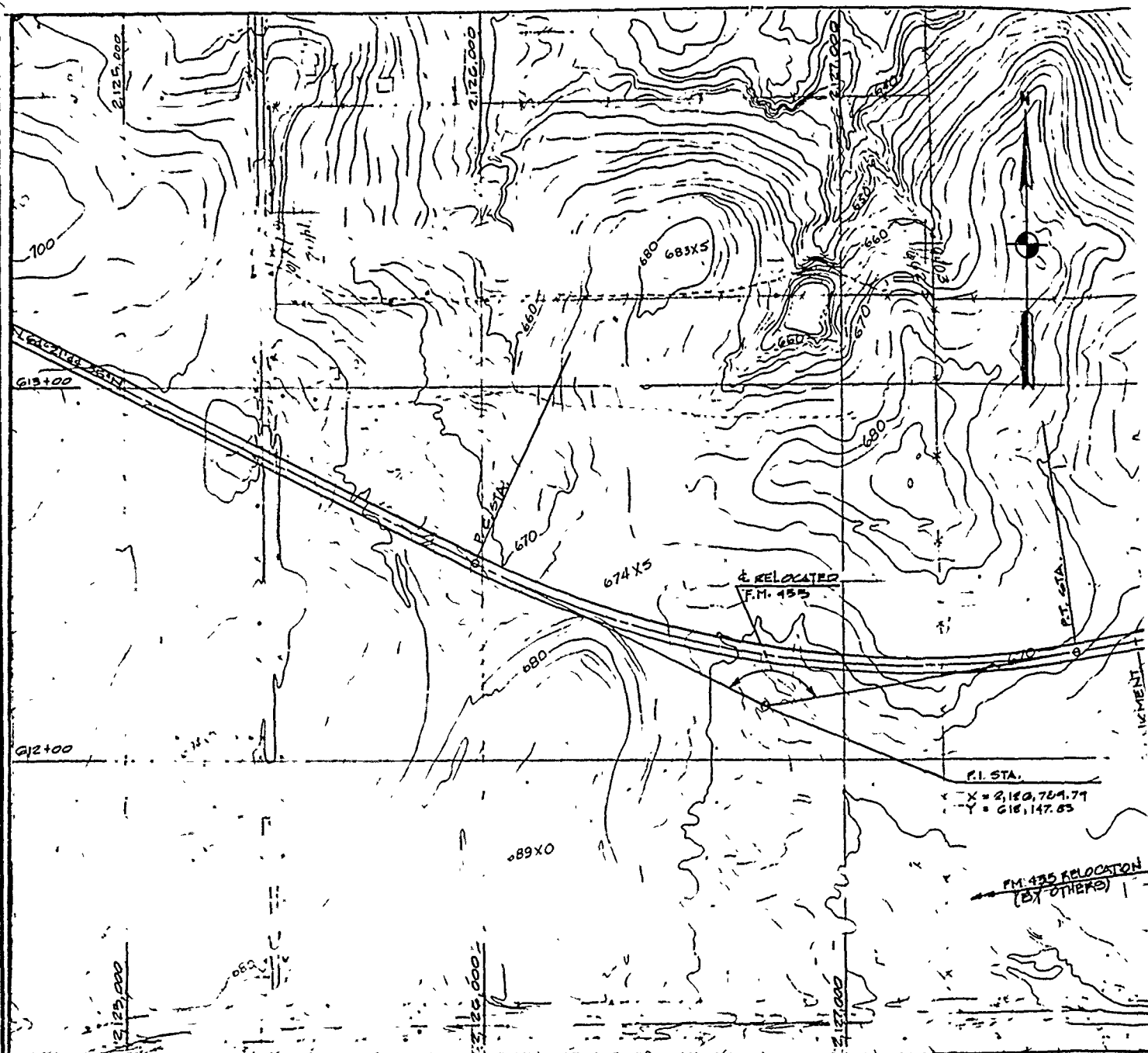
- QAL ALLUVIUM
 QT FLUVIATILE TERRACE DEPOSIT
 KWB WOODBINE FORMATION
 KGY GRAYSON FORMATION
 KMS MAIN STREET FORMATION
 KPP PAWPAW FORMATION
 GEOLOGIC CONTACT (DASHED)
 STOCK TANK

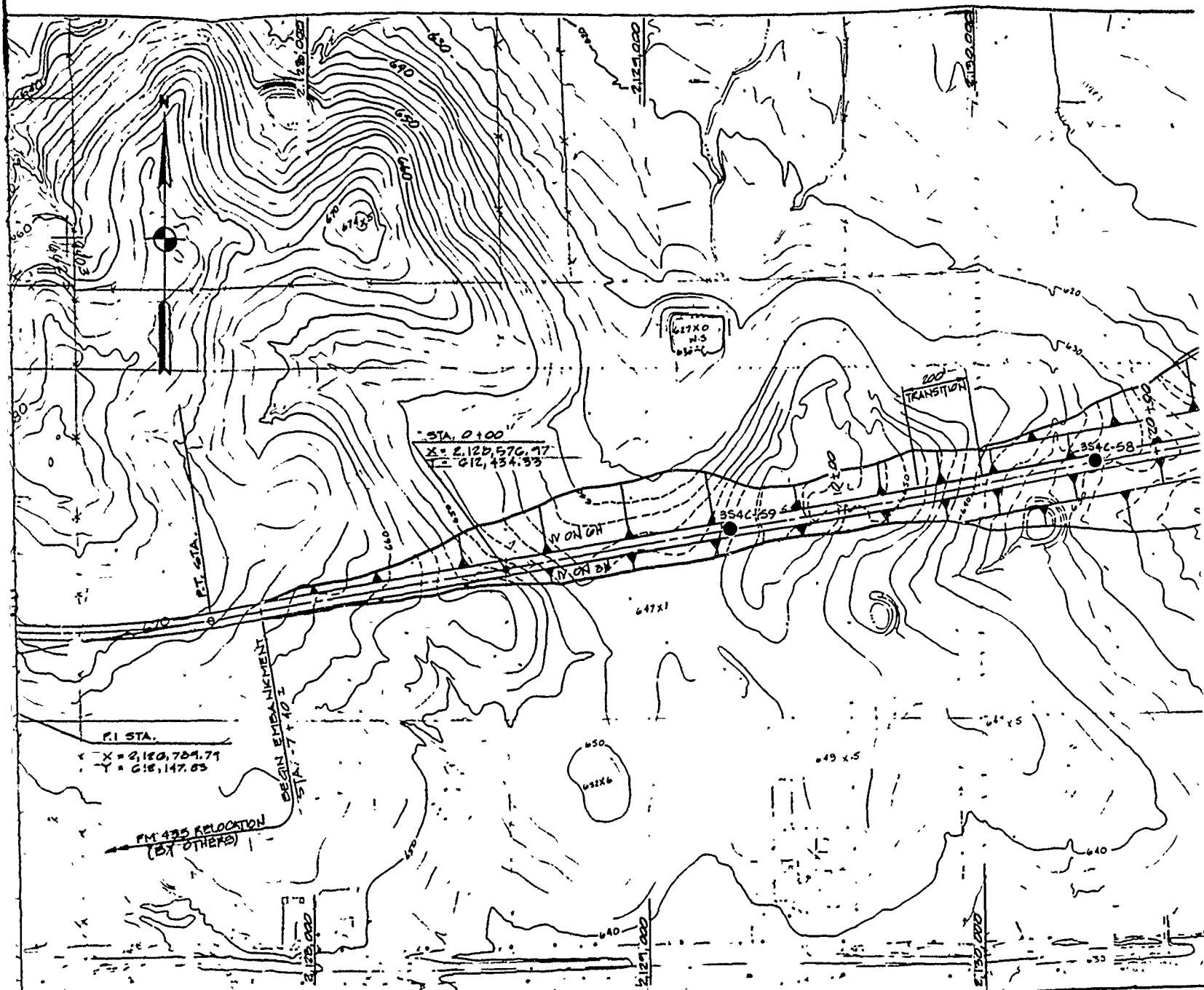
NOTES:

- SEE PLATES III-6 THROUGH III-32 FOR DETAILED LOGS OF BORINGS.
- GEOLOGY COMPILED FROM SUBSURFACE EXPLORATION AND SURFACE MAPPING.



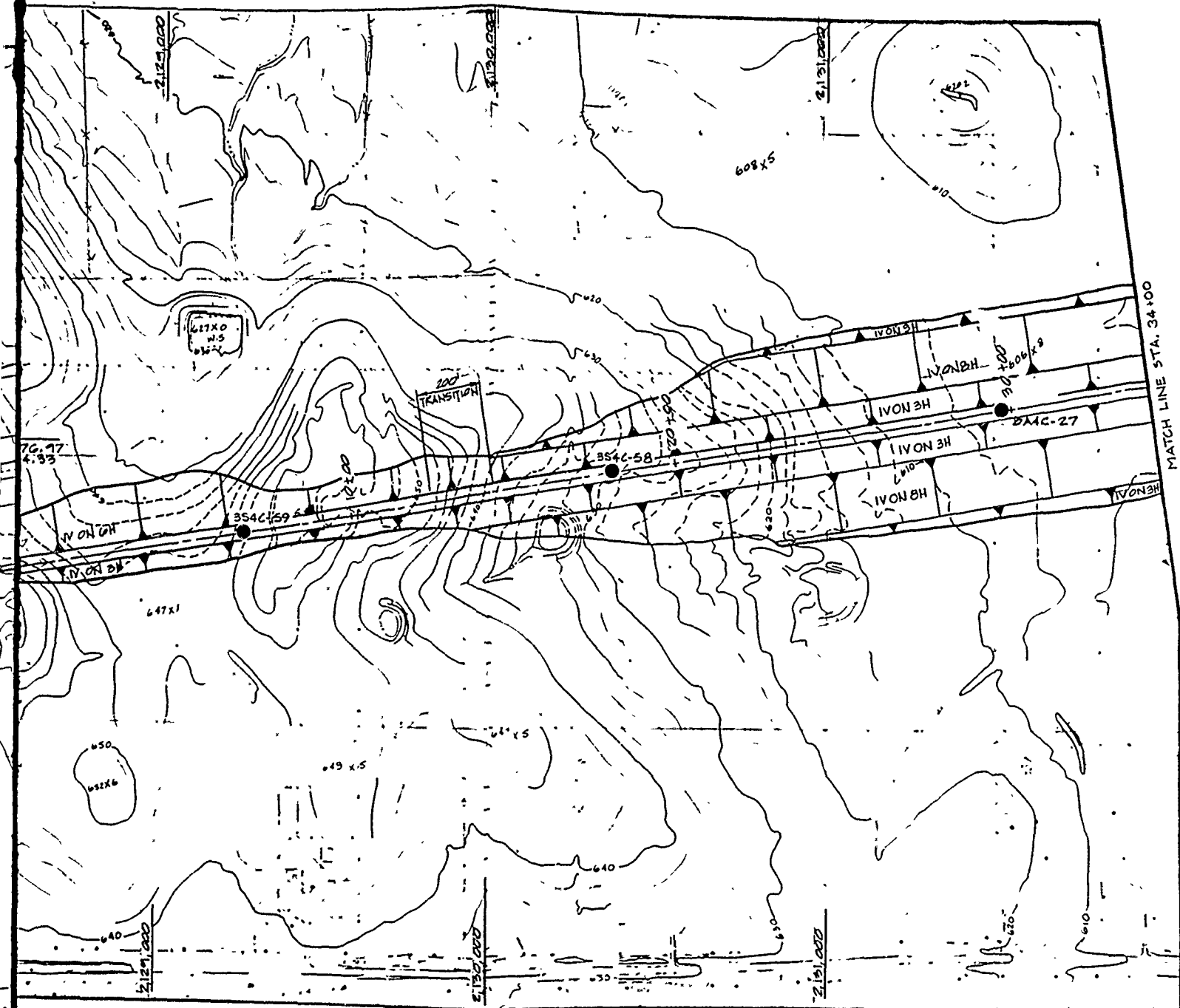






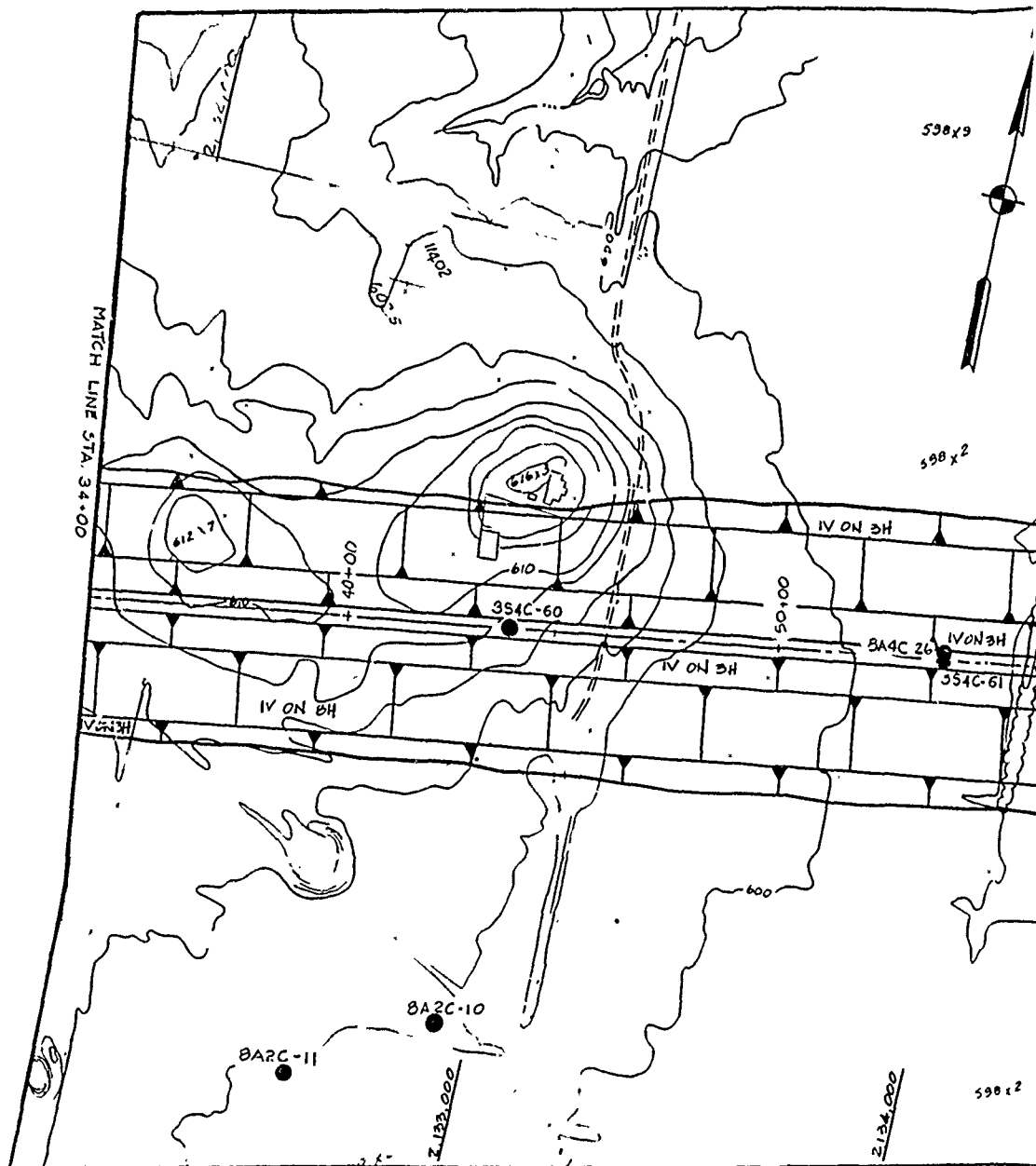
PLAN

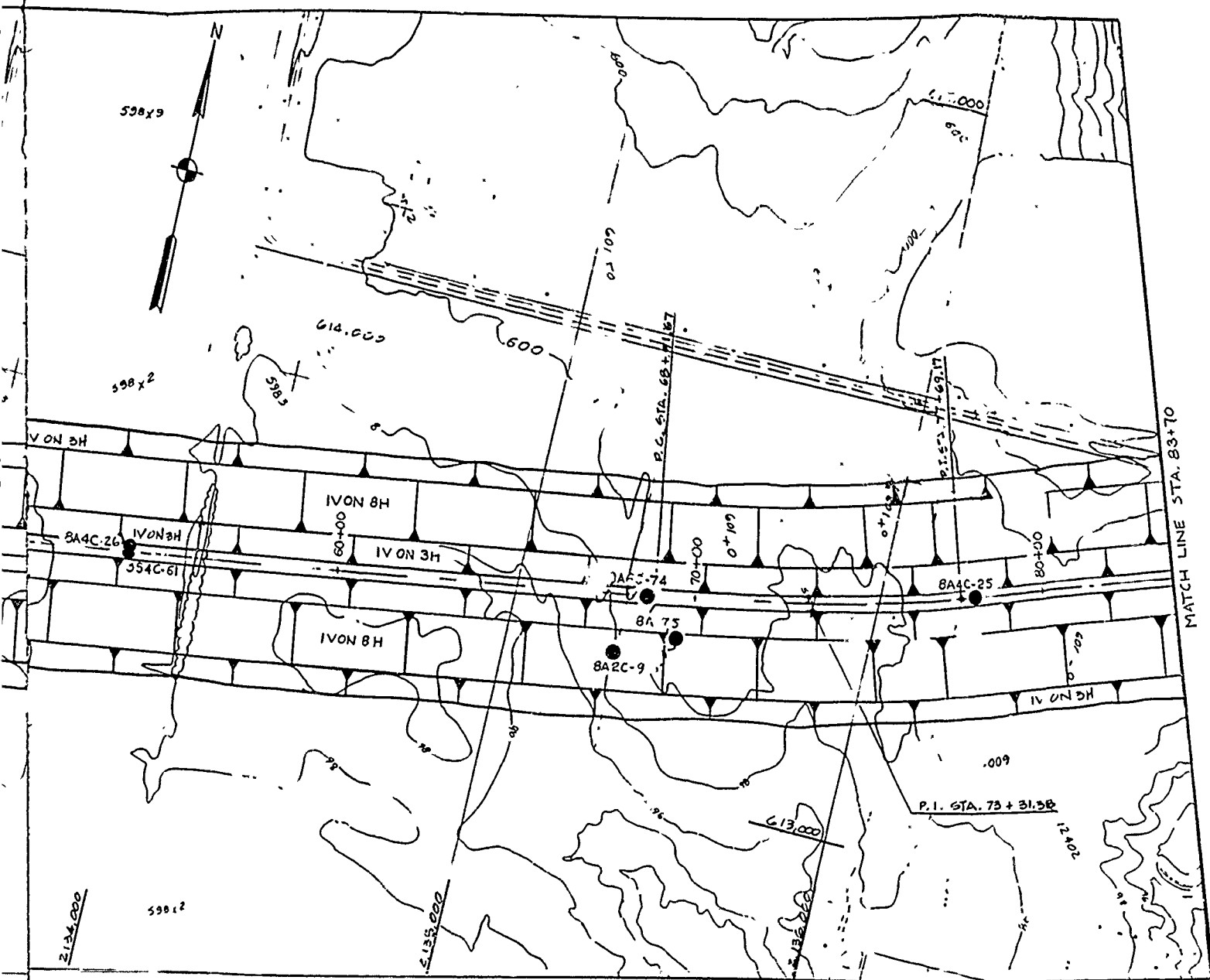
200 100 0 200 400
SCALE: 1" = 200'



RECORD DRAWING-WORK AS BUILT

REVISED BY:	A. BRANCH		
DRAWN BY:	D. BAILEY		
REVIEWED BY:	A. BRANCH		
SUBMITTED BY:	H. KARBS		
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT PLAN OF BORINGS I			
INVITATION NO. DACW 63-82-C-0026 CONTRACT NO. DACW 63-82-C-0026		DATE: MAR 81	

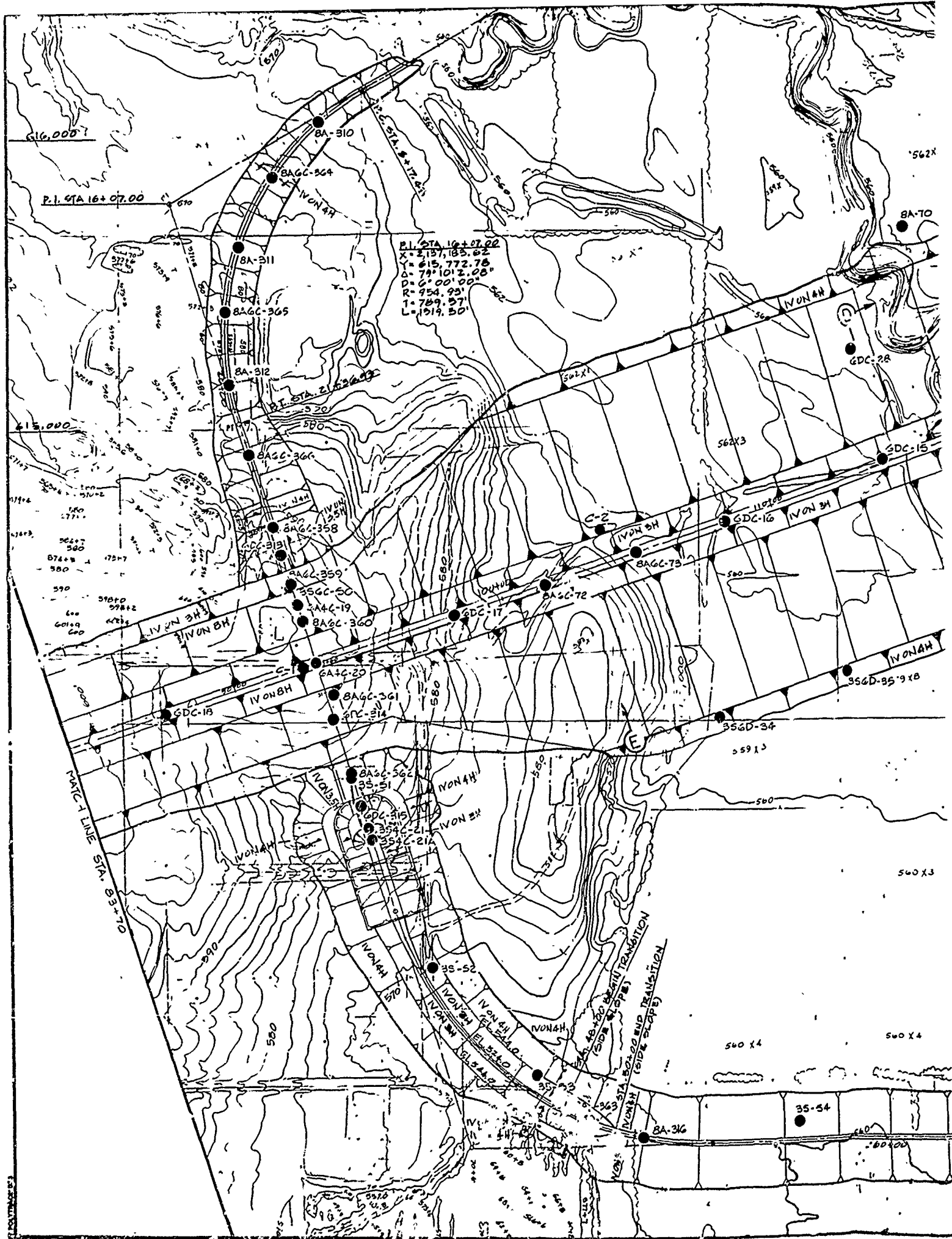




PLAN

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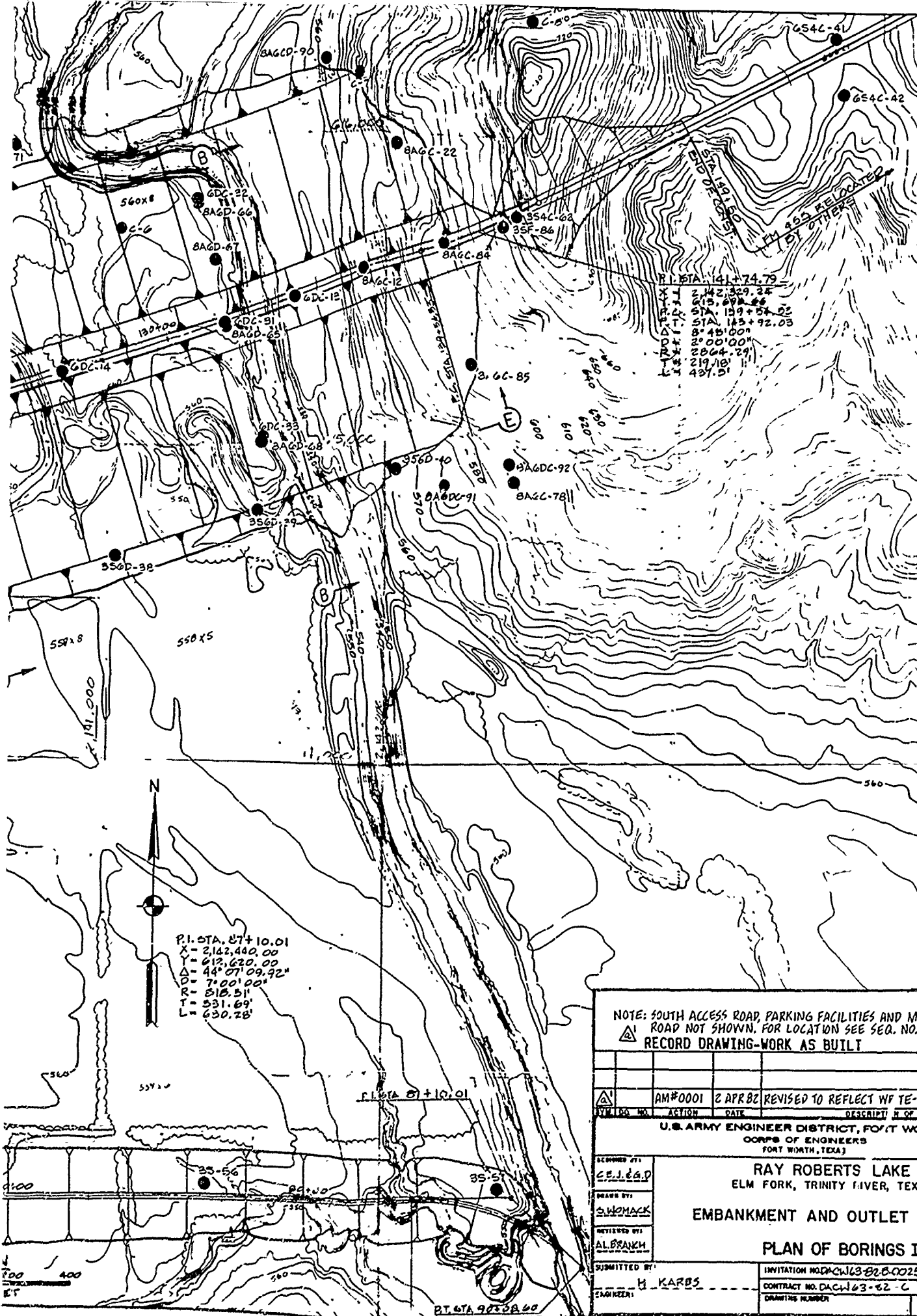
NOTE: SOUTH AC
ROAD NO
RECORD

AM#000	ASB
U.S.A.I	
DESIGNED BY:	C.E.J. & P.
DRAWN BY:	G. W. H. A. C.
REVIEWED BY:	A. L. B. A. H.
SUBMITTED BY:	H. K. A. R. B.
ENGINEER	

BT. STA 90+00

TO-AGC

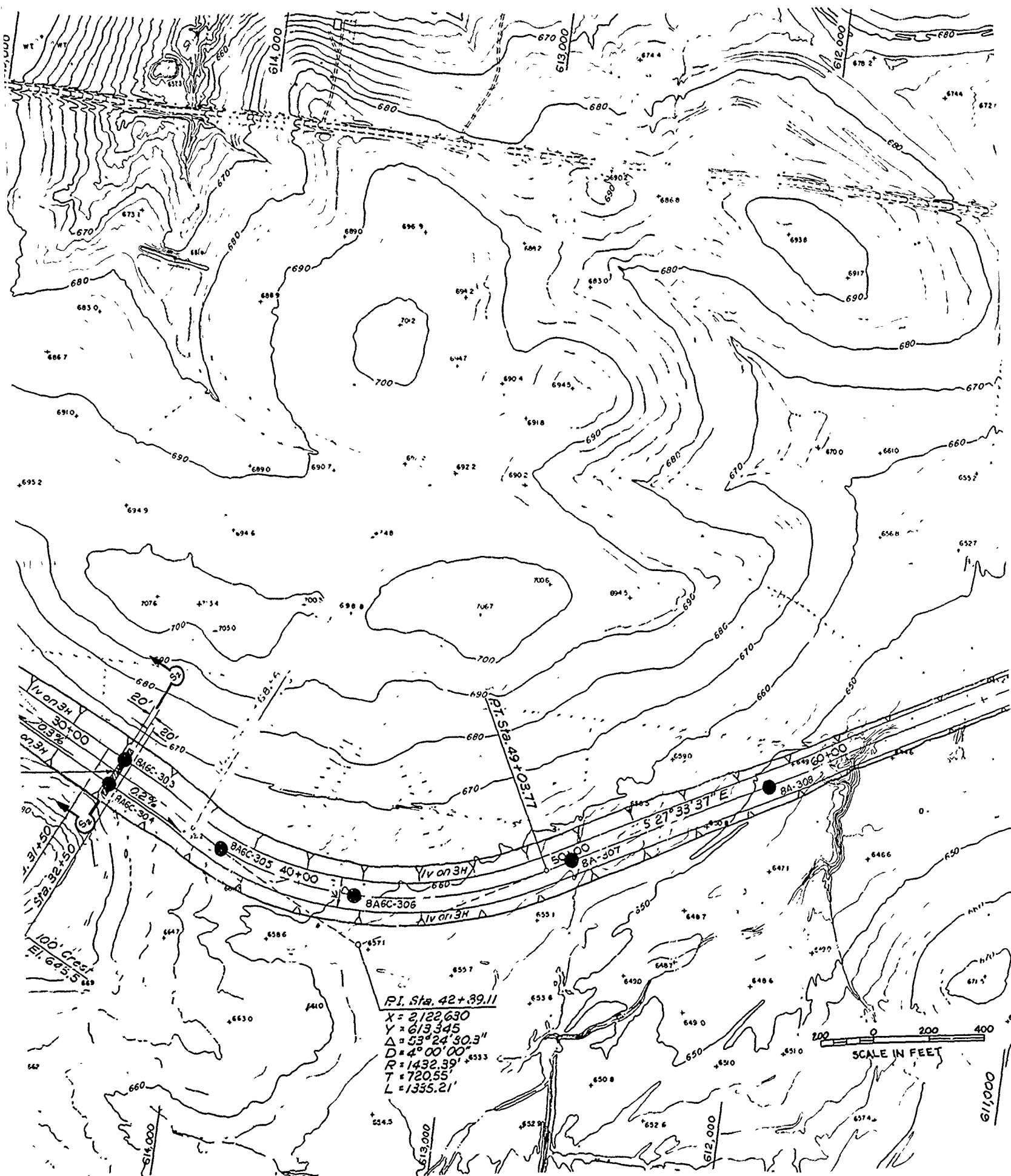
PLAN
200 100 0 100 200 400
SCALE IN FEET



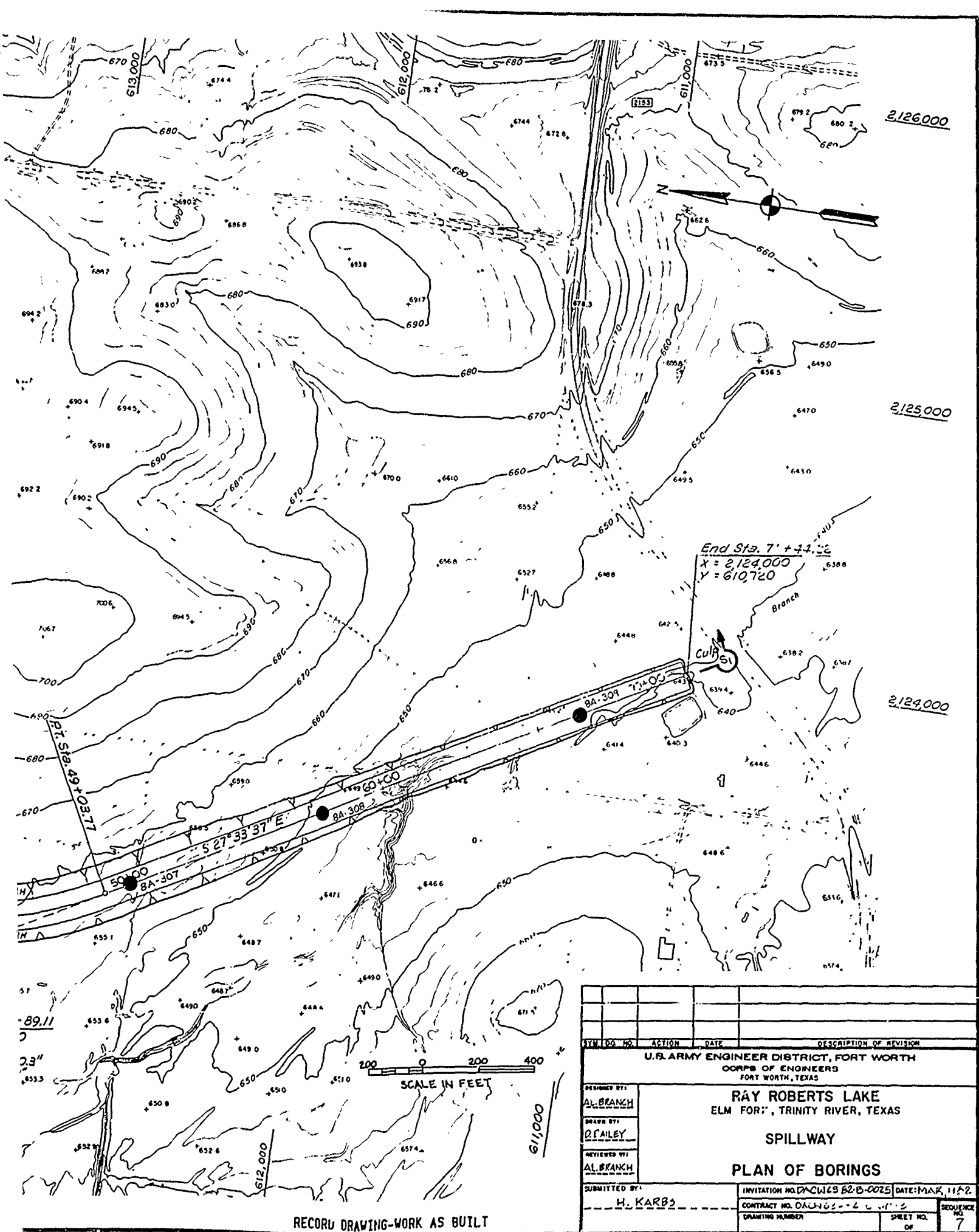
NOTE: SOUTH ACCESS ROAD, PARKING FACILITIES AND MAINTENANCE ROAD NOT SHOWN. FOR LOCATION SEE SEQ. NO. 157 AND 158. RECORD DRAWING-WORK AS BUILT

AM#0001	2 APR 82	REVISED TO REFLECT WF TE-IN CHANGE
WORKING NO.	ACTION	DATE
U.S. ARMY ENGINEER DISTRICT, FORT WORTH		
CORPS OF ENGINEERS		
FORT WORTH, TEXAS		
DESIGNED BY:	RAY ROBERTS LAKE	
DRAWN BY:	ELM FORK, TRINITY RIVER, TEXAS	
CHECKED BY:	EMBANKMENT AND OUTLET WORKS	
REVIEWED BY:	PLAN OF BORINGS III	
SUBMITTED BY:	INVITATION NO. DACW63-82-C-0025	DATE: MAR, 1982
ENGINEER:	CONTRACT NO. DACW63-82-C-0083	SEQUENCE NO. 5
	DRAWING NUMBER	SHEET NO. OF

TO ACCOMPANY FOUNDATION REPORT



RECORD DRAWING-WORK AS BUILT



UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey Date 20 August 1946
Sheet 1 of 2
Hole No. C-1 Drill No. 1 Location U.L. Sta. 47.0
Type of Bit 2-inch Elevation of Top of Hole 597.2'
Size of Core 2-inch Depth of Overburden 16.0'
Method of Arb. Sampling Earth Auger Elevation of Top of Bedrock 581.2'
Set of Casing Potted Casing Top () No ()
Depth to Water Table 97.0' Elevation of Water Table 500.2'
Total Depth of Hole 97.0' Elevation of Bottom of Hole 500.2'
Overburden Sampling 16.0' Core Drilling 81.0' Recovery 6 January 1929
Date Hole Started 8 January 1929 Date Hole Completed 6 January 1929
Number of Jars/Tubes 1 Marked Upper Elm Creek G.L. Sta. 0/00
Number of Bore 7 Marked Upper Elm Creek G.L. Sta. 0/00
Classified by Submitted by

BOX NOS	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
			0.0'	597.2'	
			8.0'	589.2'	0.0' to 8.0' CLAY, sandy, rust to dark brown.
			16.0'	581.2'	8.0' to 16.0' SAND, clayey, tan.
			19.4'	577.8'	16.0' to 19.4' Limestone, fossiliferous, earthy, brown to tan, surface or near surface outcrops of this material have been colored by iron oxide.
			28.0'	569.2'	19.4' to 28.0' SHALE, sandy. - core washed away.
			32.0'	565.2'	28.0' to 32.0' SHALE, blue, stained by iron oxide.
			47.0'		32.0' to 47.0' SHALE, compact, laminated, soft, thin shell seams.

Site Aubrey Dam

Hole No.

			47.0'	550.2'	
			61.0'	536.2'	47.0' to streaks,
			70.0'	527.2'	61.0' to
			79.6'	517.6'	70.0' to black, sh
			91.0'	506.2'	79.6' to 5 with black
			100.0'	500.2'	91.0' to 5 black, for Do

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey Date 20 August 1946
 Hole No. C-3 Drill No. 11/27
 Type of Bit 2-1/2 inch Location Upper Elm Creek C.L. Sta. 11/27
 Size of Core 2-1/2 inch Elevation of Top of Hole 562.0'
 Method of Core Sampling Earth Auger Depth of Overburden 28.0'
 Set of Casing Elevation of Top of Bedrock 534.0'
 Depth to Water Table 68.0' Elevation of Water Table 558.0'
 Total Depth of Hole 68.0' Elevation of Bottom of Hole 520.0'
 Overburden Sampling 28.0' Core Drilling 40.0' Recovery 5
 Date Hole Started 4 January 1939 Date Hole Completed 6 January 1939
 Number of Jars/Tubes 1 Marked Upper Elm Creek C.L. Sta. 11/27
 Number of Boxes 2 Marked Upper Elm Creek C.L. Sta. 11/27
 Classified by Submitted by

47.0' to 61.0' SHALE, black with gray sand streaks, pyrite.

61.0' to 70.0' SHALE, sandy, gray-black.

70.0' to 79.6' SHALE, compact, laminated, black, shell marl at 70.5'.

79.6' to 91.0' SANDSTONE, gray, cross-bedded with black shale, pyritic concretions.

91.0' to 97.0' SHALE, laminated, compact, black, fossiliferous, slightly sandy.

Bottom of hole

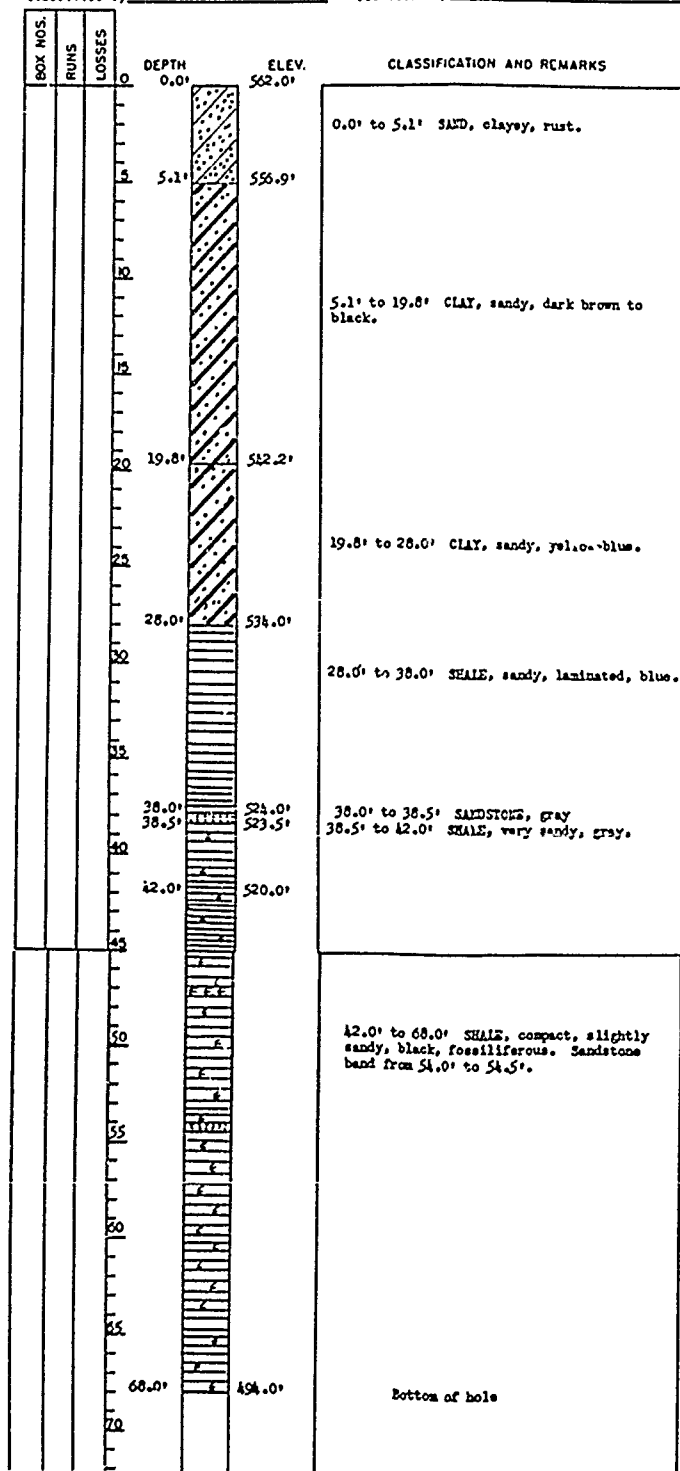
BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
			0	562.0'	
			5.1'	556.9'	0.0' to 5.1' SAND, clayey, rust.
			19.8'	542.2'	5.1' to 19.8' CLAY, sandy, dark brown to black.
			25.0'	534.0'	19.8' to 25.0' CLAY, sandy, yellow-blue.
			28.0'	529.5'	25.0' to 28.0' SHALE, sandy, laminated, blue.
			38.5'	523.5'	28.0' to 38.0' SHALE, sandy, laminated, blue.
			42.0'	520.0'	38.0' to 38.5' SANDSTONE, gray 38.5' to 42.0' SHALE, very sandy, gray.
			68.0'	504.0'	42.0' to 68.0' SHALE, compact, slightly sandy, black, fossiliferous. Sandstone band from 54.0' to 54.5'.
					Bottom of hole

11/27	00	NO
DESIGNED BY		
DRAWN BY		
CHECKED BY		
SUBMITTED BY		
ENGINEER		

UNITED STATES ENGINEER OFFICE
 ENGINEERING DIVISION
 FIELD INVESTIGATIONS SECTION
 GALVESTON, TEXAS

LOG OF CORE DRILLING

Hole No. C-2 Drill No. _____ Date 20 August 1946
 Site Aubrey Sheet 1 of 2
 Location C.L. Sta. 11/27
 Type of Bit _____ Elevation of Top of Hole 542.0'
 Size of Core 2-Inch Depth of Overburden 28.0'
 Method of Obs. Sampling Earth Auger Elevation of Top of Bedrock 534.0'
 Set _____ of _____ Casing Pulled Casing Top () No ()
 Depth to Water Table _____ Elevation of Water Table _____
 Total Depth of Hole 68.0' Elevation of Bottom of Hole 494.0'
 Overburden Sampling 28.0' Core Drilling 40.0' Recovery _____
 Date Hole Started 4 January 1939 Date Hole Completed 6 January 1939
 Number of Jars/Tubes 1 Marked Upper Elm Creek C.L. Sta. 11/27
 Number of Boxes 2 Marked Lower Elm Creek C.L. Sta. 11/27
 Classified by _____ Submitted by _____



RECORD DRAWING-WORK AS BUILT

SYM	NO.	ACTION	DATE	DESCRIPTION OF REV.
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY	RAY ROBERTS LAKE			
DRAWN BY	ELM FORK, TRINITY RIVER, TEXAS			
REVIEWED BY	EMBANKMENT, SPILLWAY AND			
SUBMITTED BY	OUTLET WORKS			
ENGINEER	LOGS OF BORINGS			
	C-1 AND C-2			
INVITATION NO. DACW 63-820 0025		DATE MAR. 1942		
CONTRACT NO. DACW 63-82-C-0003		SEQUENCE		
DRAWING NUMBER		SHEET NO.		
		10		

TO ACCOMPANY FOUNDATION REPORT

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

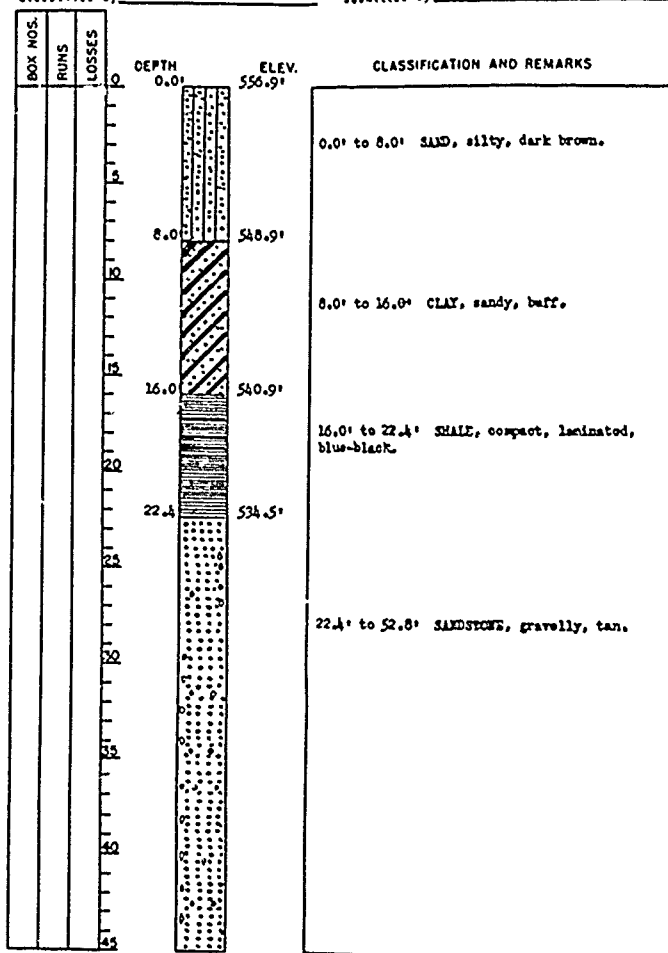
LOG OF CORE DRILLING

Date 20 August 1946

Sheet 1 of 2

Site Aubrey C.L. Sta. 28+35.500' below.

Hole No. C-4 Drill No. _____ Location 1- _____
Type of Bit _____ Elevation of Top of Hole 556.9'
Size of Core 2-Inch Depth of Overburden 16.0'
Method of Ovb. Sampling Wash Lucas Elevation at Top of Bedrock 540.9'
Set _____ of Casing Pulled Casing Yes () No ()
Depth to Water Table _____ Elevation of Water Table _____
Total Depth of Hole 82.0' Elevation of Bottom of Hole 474.9'
Overburden Sampling 16.0' Recovery 76.0' 5 Recovery
Date Hole Started 6 January 1939 Core Drilling Completed 10 January 1939
Number of Jars/Tubes 2 Marked Upper Elm Creek 500' below 28+00
Number of Boxes 1 Marked Upper Elm Creek 500' below 28+00
Classified by _____ Submitted by _____

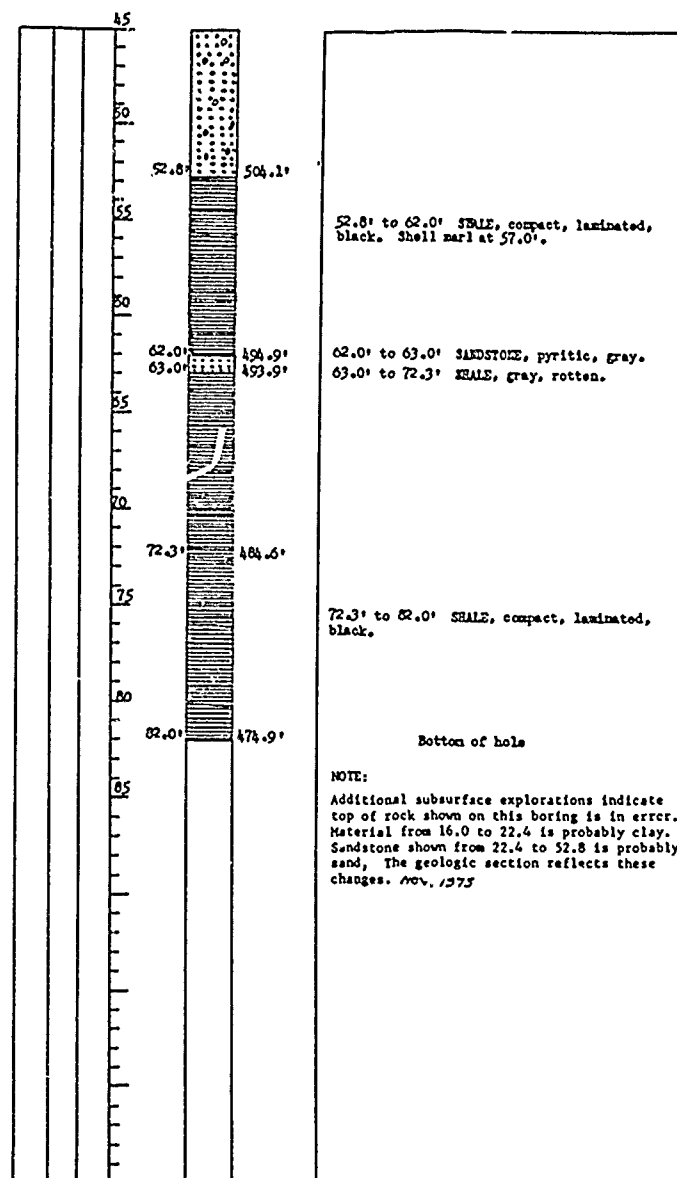


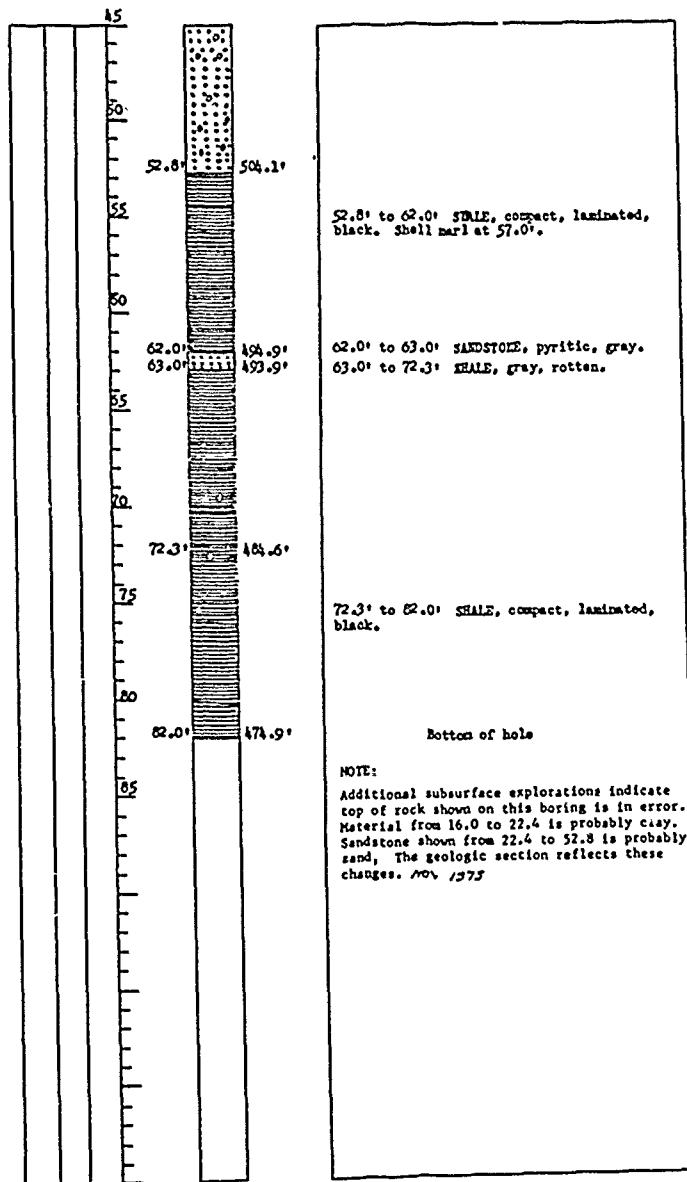
LOG OF CORE DRILLING CONTINUATION 3rd

Site Aubrey

Hole No. C-4

Sheet 2 of 2





RECORD DRAWING-WORK AS BUILT

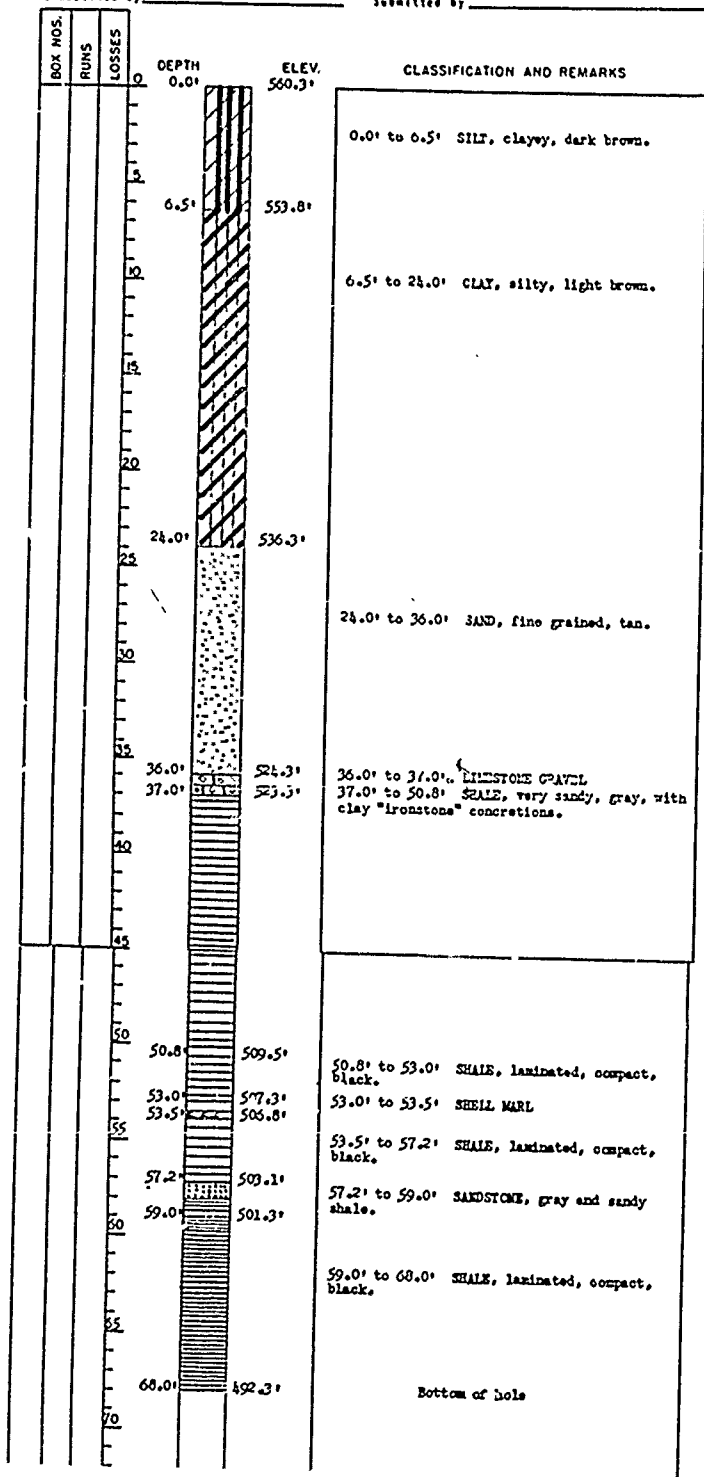
SYM	LOC	NO	ACTION	DATE	REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY:	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT, SPILLWAY AND OUTLET WORKS LOGS OF BORINGS C-3 AND C-4				
ENGINEER	INVITATION NO. DACW 63-82-B-0025 DATE MAR, 1982 CONTRACT NO. DACW 63-72-C-0082 DRAWING NUMBER 9				

UNITED STATES ENGINEER OFFICE
 ENGINEERING DIVISION
 FIELD INVESTIGATIONS SECTION
 GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey Date 20 August 1946

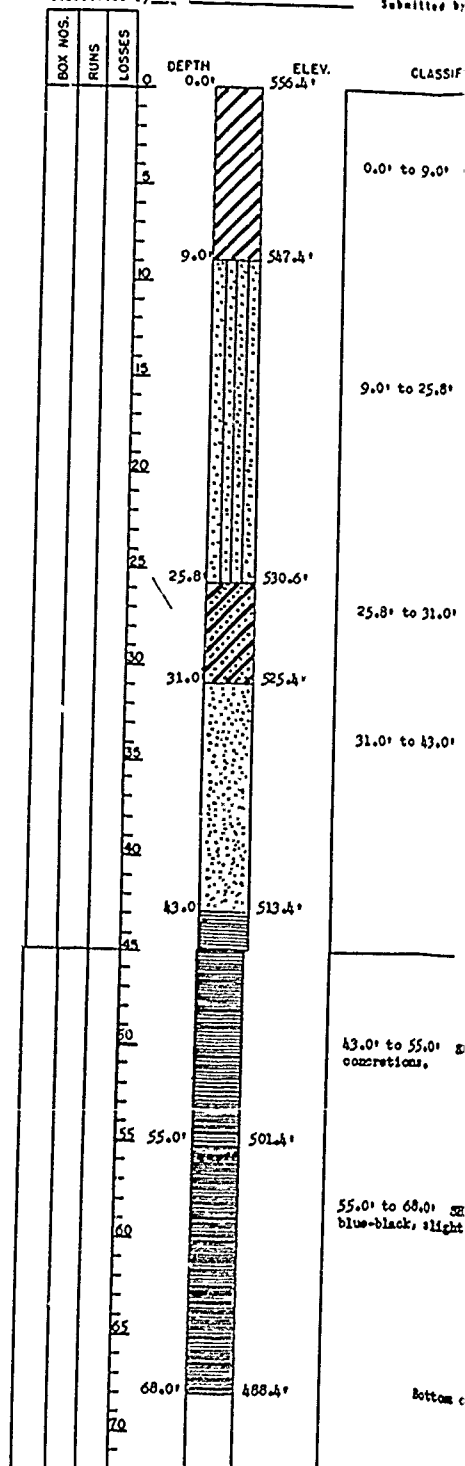
Hole No. C-5 Drill No. 1 Location 1- 500' above Sta. 28700
 Type of Bit 2-inch Elevation of Top of Hole 560.3'
 Size of Core 2-inch Depth of Overburden 37.0'
 Method of Overburden Sampling Earth Auger Elevation of Top of Bedrock 523.3'
 Set of Casing Pulled Casing Yes () No ()
 Depth to Water Table Elevation of water Table 492.3'
 Total Depth of Hole 68.0' Elevation of Bottom of Hole 492.3'
 Overburden Sampling 37.0' Core Drilling 31.0' Recovery
 Date Hole Started 18 January 1939 Date Hole Completed 20 January 1939
 Number of Jars/Tubes None
 Number of Boxes 1
 Classified by Hardee Upper Elm Creek 500' Above Sta. 28700
 Submitted by


 UNITED STATES ENGINEER OFFICE
 ENGINEERING DIVISION
 FIELD INVESTIGATIONS SECTION
 GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey

Hole No. C-6 Drill No. 1 Location 1- 500' above Sta. 28700
 Type of Bit 2-inch Elevation of Top of Hole 560.3'
 Size of Core 2-inch Depth of Overburden 37.0'
 Method of Overburden Sampling Earth Auger Elevation of Top of Bedrock 523.3'
 Set of Casing Pulled Casing Yes () No ()
 Depth to Water Table Elevation of water Table 492.3'
 Total Depth of Hole 68.0' Elevation of Bottom of Hole 492.3'
 Overburden Sampling 37.0' Core Drilling 31.0' Recovery
 Date Hole Started 16 January 1939 Date Hole Completed 20 January 1939
 Number of Jars/Tubes None
 Number of Boxes 1
 Classified by Hardee Upper Elm Creek 500' Above Sta. 28700
 Submitted by



SVB-C-1

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

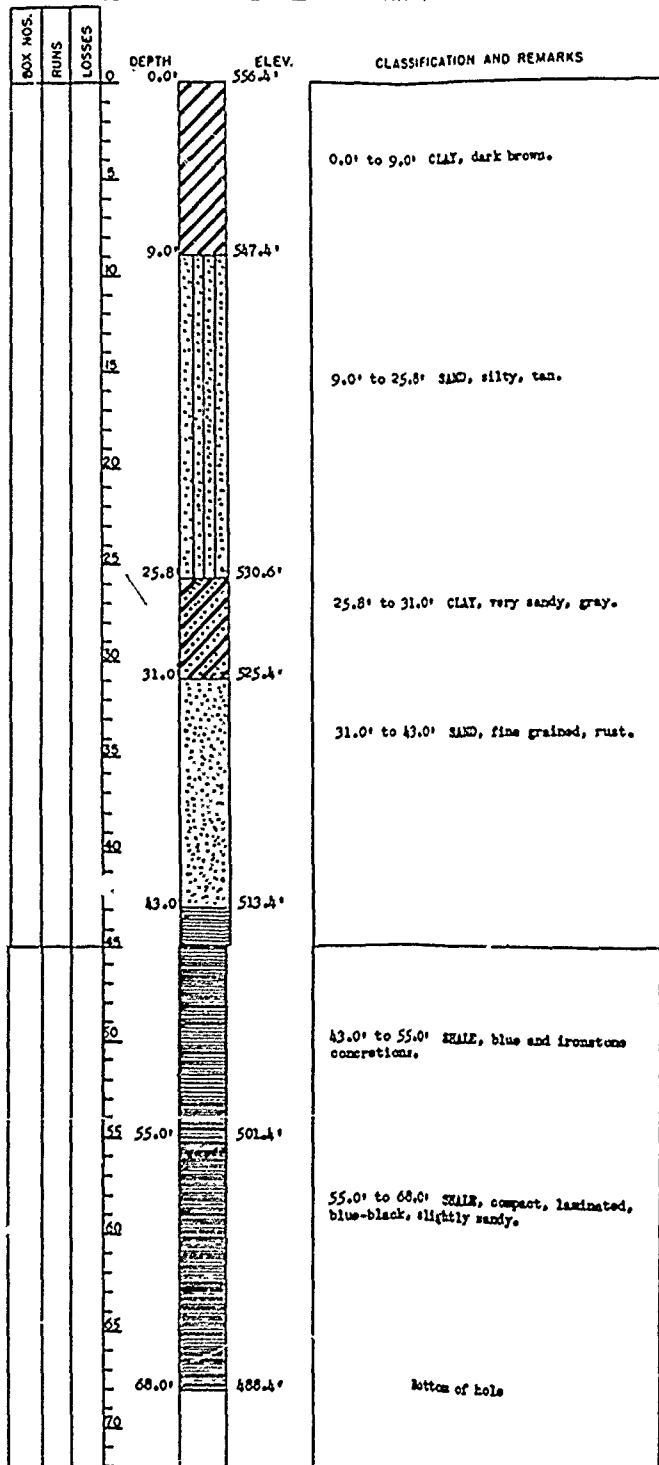
LOG OF CORE DRILLING

Date 20 August 1946

Site Aubrey

Sheet 1 of 2

Hole No. C-6 Drill No. _____ Location In _____
Type of Bit _____ Elevation of Top of Hole 556.4'
Size of Core 2-Inch Depth of Overburden 43.0'
Method of Ovb. Sampling Earth Auger Elevation of Top of Bedrock 513.4'
Set _____ of _____ Casing Pulled Casing Yes () No ()
Depth to Water Table _____ Elevation of Water Table _____
Total Depth of Hole 68.0' Elevation of Bottom of Hole 488.4'
Overburden Sampling 43.0' Core Drilling 25.0' S Recovery _____
Date Hole Started 16 January 1939 Date Hole Completed 18 January 1939
Number of Jars/Tubes None Marked _____
Number of Boxes 1 Marked Upper Elm Creek C.L. Sta. 36400
Classified by _____ Submitted by _____



SVB-C-1-

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

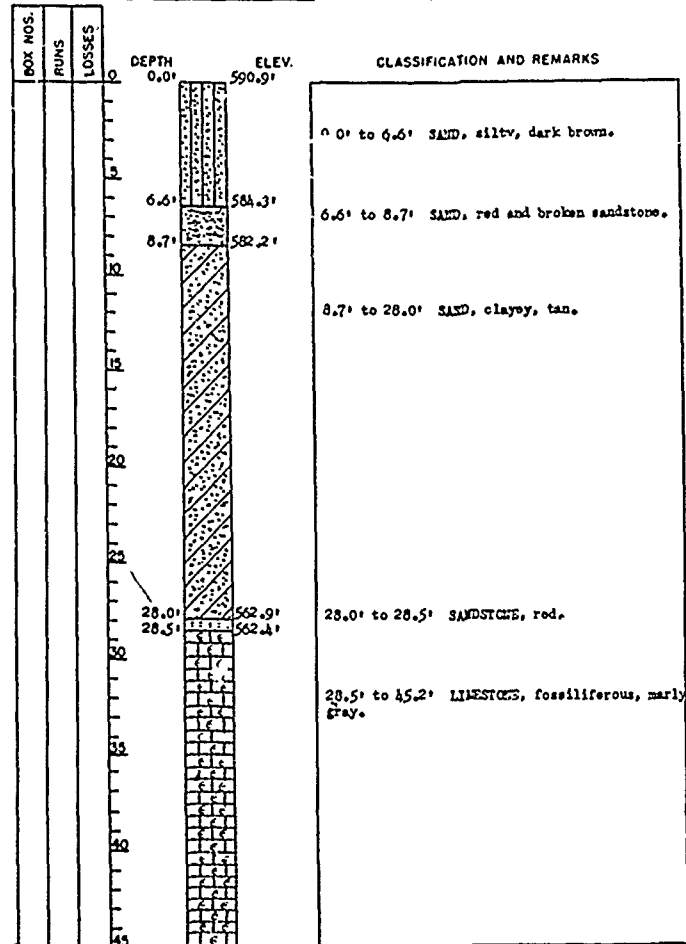
LOG OF CORE DRILLING

Date 20 August 1946

Site Aubrey

Sheet 1 of 2

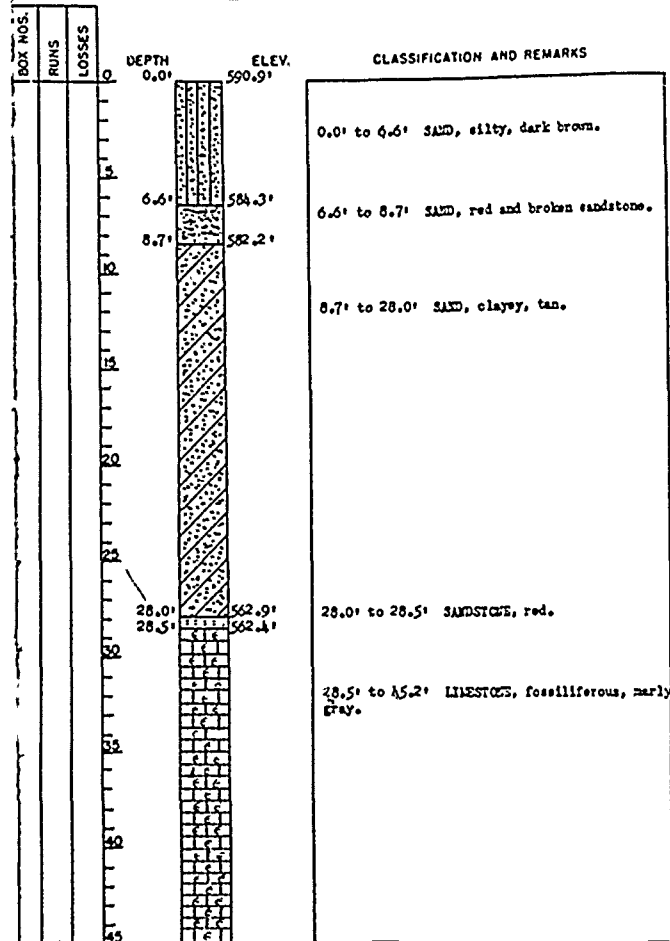
Hole No. C-7 Drill No. _____ Location In _____
Type of Bit _____ Elevation of Top of Hole 590.9'
Size of Core 2-Inch Depth of Overburden 28.0'
Method of Ovb. Sampling Earth Auger Elevation of Top of Bedrock 562.9'
Set _____ of _____ Casing Pulled Casing Yes () No ()
Depth to Water Table _____ Elevation of Water Table _____
Total Depth of Hole 95.0' Elevation of Bottom of Hole 495.9'
Overburden Sampling 28.0' Core Drilling 67.0' S Recovery _____
Date Hole Started 12 January 1939 Date Hole Completed 16 January 1939
Number of Jars/Tubes 1 Marked _____
Number of Boxes 2 Marked Upper Elm Creek C.L. Sta. 45410
Classified by _____ Submitted by _____



UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey Date 20 August 1946
Sheet 1 of 2
C.L. Sta. 45+80
Hole No. C-7 Drill No. 1
Type of Bit 2-Inch
Elevation of Top of Hole 590.91
Depth of Overburden 28.01
Method of Casing Earth Auger
Elevation of Top of Bedrock 582.91
Pulled Casing Yes () No ()
Depth to Water Table 585.01
Elevation of Water Table 585.01
Elevation of Bottom of Hole 582.91
Core Drilling 67.01 % Recovery
Date Hole Completed 16 January 1939
Date Hole Started 12 January 1939
Number of Jars/Tubes 1
Number of Boxes 2
Submitted by Upper Elm Creek C. L. Sta. 45+80



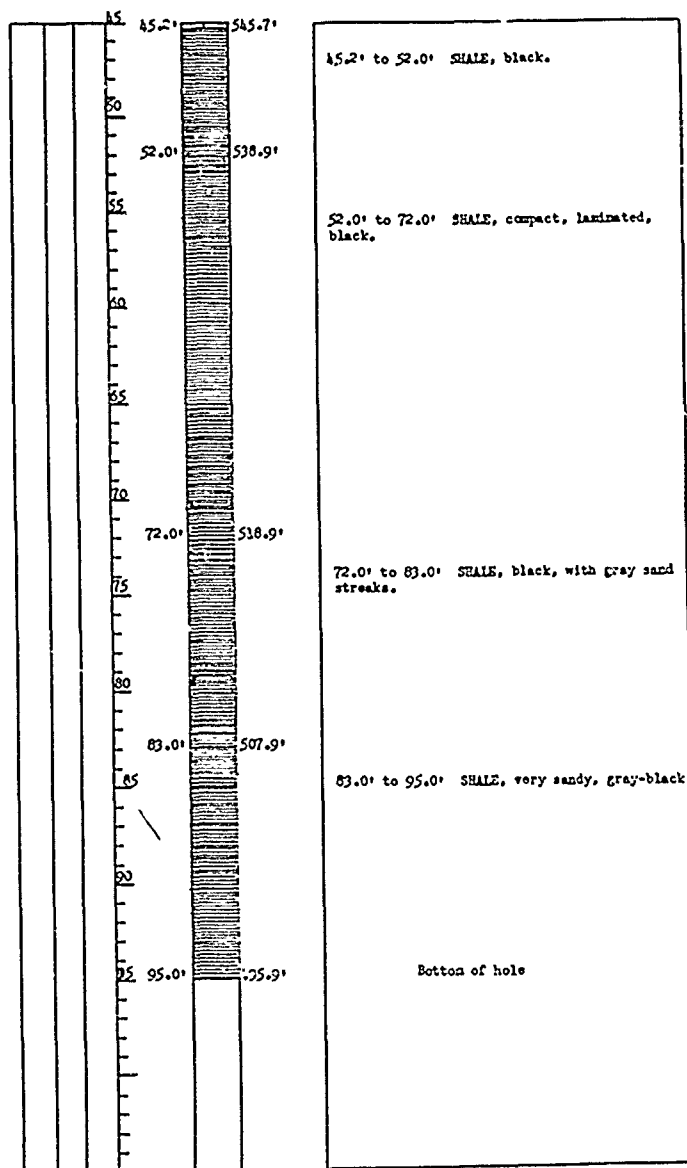
SM-42

LOG-- CORE DRILLING CONTINUATION SM--

Site Aubrey

Hole No C-7

Sheet 2 of 2



RECORD DRAWING-WORK AS BUILT

DESIGNED BY	RAY ROBERTS LAKE		
DRAWN BY	ELM FORK, TRINITY RIVER, TEXAS		
REVIEWED BY	EMBANKMENT, SPILLWAY AND		
	OUTLET WORKS		
	LOGS OF BORINGS		
	C-5, C-6 AND C-7		
SUBMITTED BY	INVITATION NO. DACW 63-82-0-0025	DATE	MAR. 1962
ENGINEER	CONTRACT NO. DACW 63-92-C-0000	SHEET NO.	10
	DRAWING NUMBER	OF	

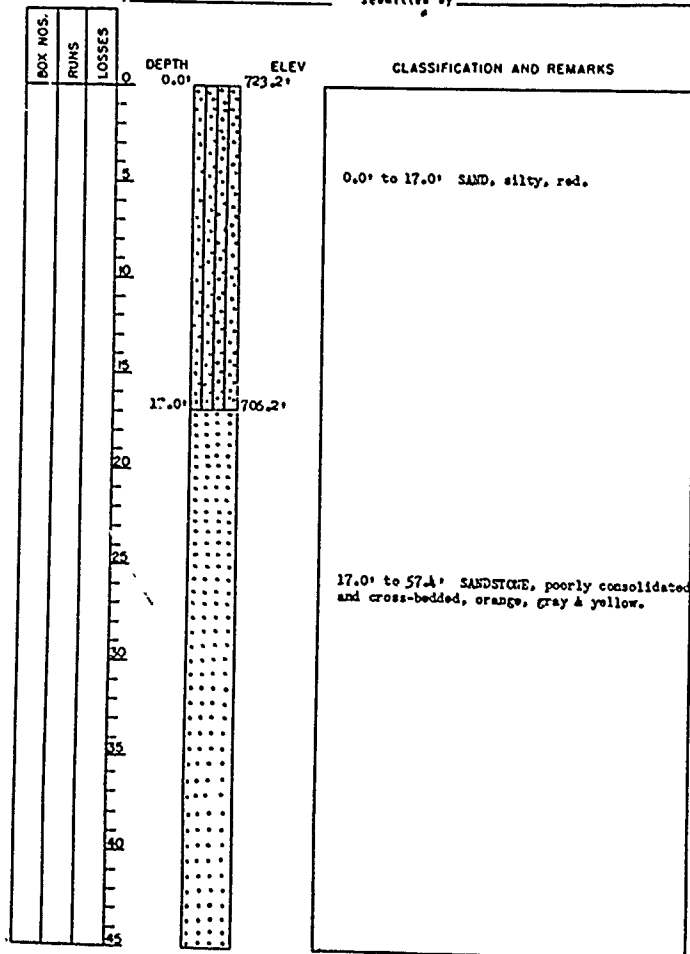
TO ACCOMPANY FOUNDATION REPORT

SVEN-C-1.

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

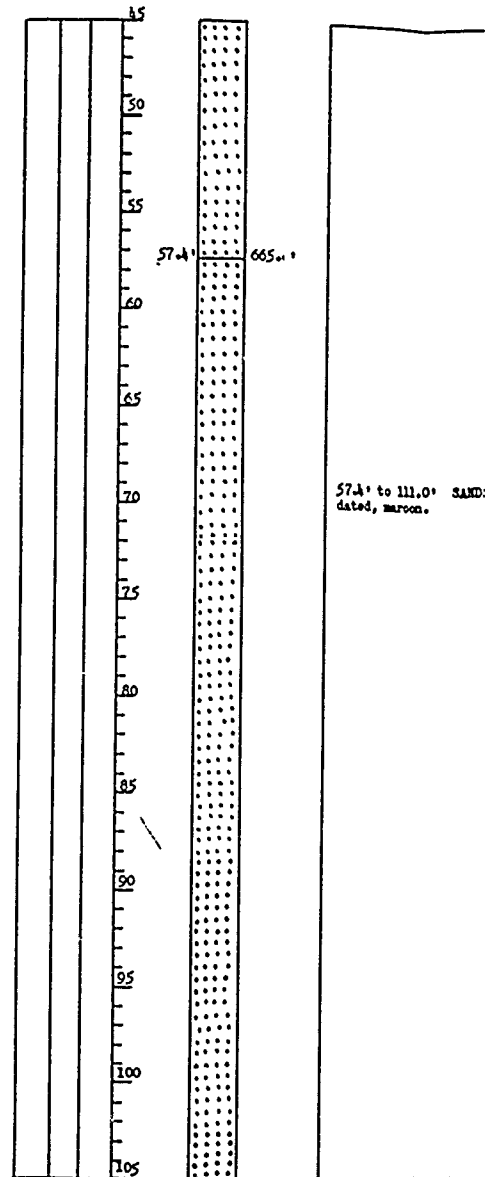
LOG OF CORE DRILLING

Site Aubrey Date 20 August 1946
Hole No. C-8 Drill No. Location Co. L Sta. 51436
Type of Bit Elevation of Top of Hole 723.23
Size of Core 2-inch Depth of Overburden 17.0
Method of Ovb. Sampling Earth Auger Elevation of Top of Sedrock 706.2
Set of Casing Pulled Casing Yes () No ()
Depth to Water Table Elevation of Water Table
Total Depth of Hole 217.0 Elevation of Bottom of Hole 506.2
Overburden Sampling 17.0 Core Drilling 200.0 % Recovery
Date Hole Started 12 January 1939 Date Hole Completed 30 January 1939
Number of Jars/Tubes 1 Marked Upper Elm Creek C.L. Sta. 51436
Number of Boxes 4 Marked Upper Elm Creek C.L. Sta. 51436
Classified by Submitted by



SVEN-C-2.

LOG CORE DRILLING CONTINUATION SV

Site AubreyHole No. C-8

Hole No. C-8

Sheet 2 of 3

Site Aubrey

Hole No. C-8

Sheet 2 of 3

Site Aubrey

665.0'

57.4' to 111.0' SANDSTONE, poorly consolidated, maroon.

105

110

115

120

125

129.0

130

135

140

145

150

155

160

165

111.0

119.6'

129.0

141.0

145.0

612.2'

603.6'

594.2'

582.2'

578.2'

111.0' to 119.6' SHALE, lignitic, black-brown.

119.6' to 129.0' SHALE, sandy, gray-black. Seams of plastic clay.

129.0' to 141.0' SANDSTONE, clayey, consolidated, yellow-gray.

141.0' to 145.0' SHALE, very sandy, green.

145.0' to 165.0' SHELL AGGLOMERATE in matrix of green marly limestone.

165

166.0'

170

175

180

185

190

195

200

205

210

215

217.0'

220

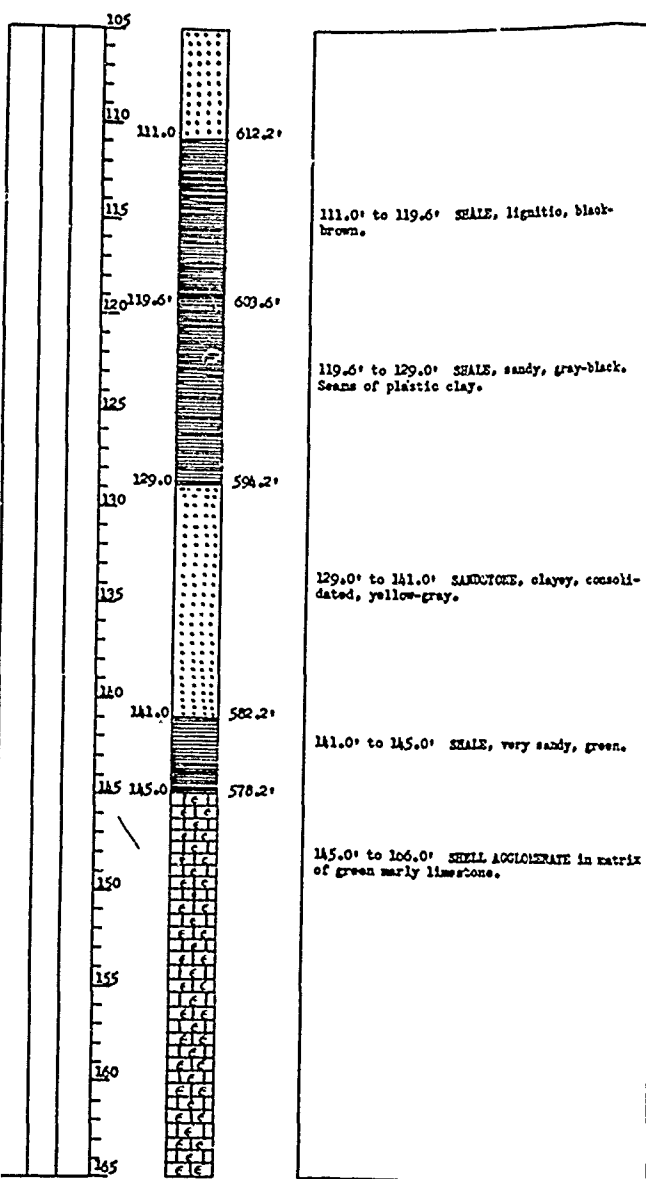
SVDR-C-2.

LOG CORE DRILLING CONTINUATION SH

Site Aubrey

Hole No. C-8

Sheet 1 of 1



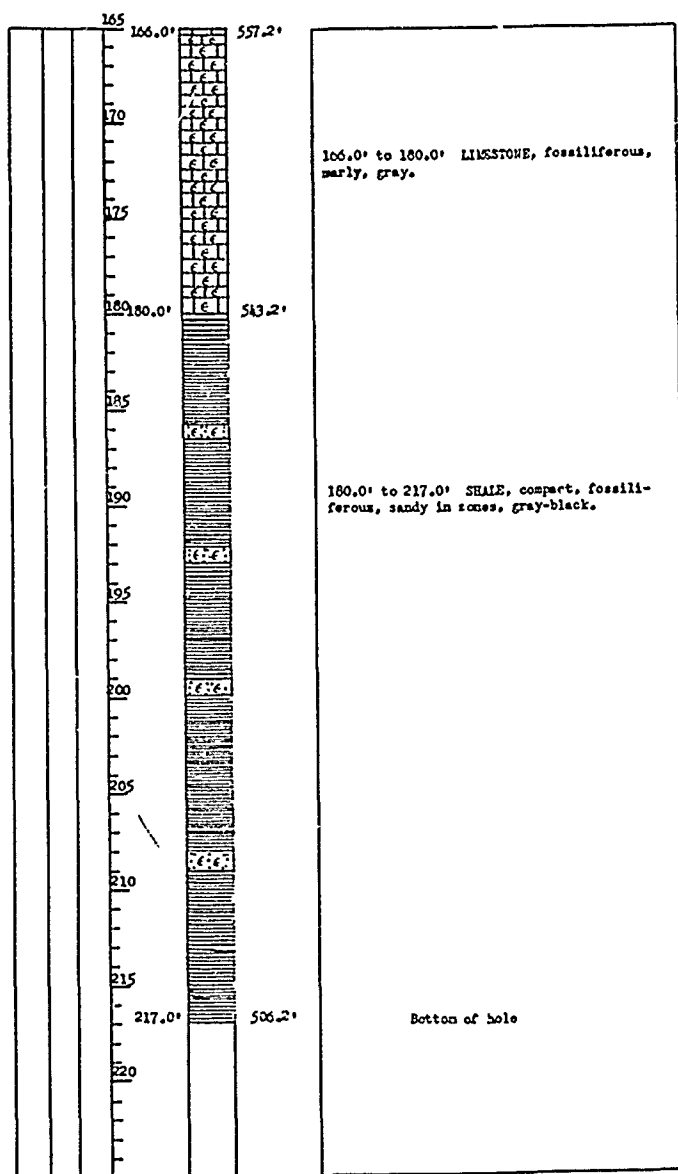
SVDR-C-2.

LOG CORE DRILLING CONTINUATION SH

Site Aubrey

Hole No. C-8

Sheet 2 of 2



RECORD DRAWING-WORK AS BUILT

SYMBOL	LOG NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT, SPILLWAY AND OUTLET WORKS LOGS OF BORINGS C-8			
DRAWN BY				
REVIEWED BY				
SUBMITTED BY	INVITATION NO. DACW63-82-B-0025		DATE: MAY, 1982	
ENGINEER	CONTRACT NO. DACW63-72-C-0592		SEQUENCE NO. 11	
	DRAWING NUMBER		SHEET NO. OF	

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A2C-9

DRILLING LOG			INSTALLATION		SHEET 1 OF 3 SHEETS	
1. PROJECT Aubrey Dam Site			2. SITE AND TYPE OF BIT 8" Auger 2" Core Bbl		3. DATE FOR ELEVATION IDENTIFICATION 11/11/60	
4. LOCATION (Coordinates or Section)			5. MANUFACTURER'S DESIGNATION Falling 1500			
6. DRILLING AGENCY Corps of Engineers			7. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN 2			
8. HOLE NO. (As shown on drawing note) and site number 8A2C-9			9. TOTAL NUMBER CORE BOXES 5			
10. NAME OF DRILLER R. M. Dunn			11. ELEVATION GROUND WATER *			
12. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <input type="checkbox"/> REC. FROM VERT.			13. DATE HOLE STARTED 5 Dec 50 COMPLETED 8 Dec 60			
14. THICKNESS OF OVERBURDEN 4.5			15. ELEVATION TOP OF HOLE 600.3'			
16. DEPTH DRILLED INTO ROCK 101.5			17. TOTAL CORE RECOVERY FOR BORING 84			
18. TOTAL DEPTH OF HOLE 106.0			19. SIGNATURE OF INSPECTOR			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1. CORE RECOVERY NO.	2. CORE BOX NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
596.0'	4.5'		Start 2" core 4.5' to 3.9' limestone, mar- ly, hard, siliceous, massive, weathered, dark red oxidized streak from 8.0' to 8.4', gray to buff	75	Box 1	*Ground water elevation undetermined
591.6'	8.9'		8.9 to 12.3 clay, shaly, sand lenses thru out, weath- ered, slightly laminated, tan to gray	80		Jar Sample Depths A- 0.0 to 3.6' B- 3.6 to 4.3
588.2'	12.3'		NOTE: Base of weathering zone	86		
20			12.3 to 96.5' shale, clayey, sandy, firm to medium hard, very fossiliferous, laminated, dark gray	86		
			NOTE: Medium hard sandstone streaks at following depths: 16.7 to 16.9 24.7 to 25.3 40.0 to 40.4 43.1 to 43.3 48.0 to 48.4 55.0 (Siltstone)	86	Box 2	
8				90		
				97		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1. CORE RECOVERY NO.	2. CORE BOX NO.
					Box 3
				84	
				92	
					Box 4
				90	
				88	
504.0'	96.5'		96.5' to 100.0 LIMESTONE sandy, hard, massive, fossil- iferous, gray	100	
			100' to 106.0' SHALE, clayey firm, laminated, gray	40	Box 5
494.5'	106.0'		T. D. 106.0'		

1. PROJECT	2. LOCATION	3. DRILLING AGENCY	4. NAME OF DRILLER	5. DIRECTION OF HOLE	6. THICKNESS OF OVERBURDEN	7. DEPTH DRILLED INTO ROCK	8. TOTAL DEPTH OF HOLE	9. REMARKS
Aubrey Dam Site	Southwestern	Corps of Engineers	R. M. Dunn	VERTICAL	19.5	45.5	60.0	
<div style="display: flex; justify-content: space-between;"> <div> <p>Box 3</p> <p>84</p> <p>92</p> <p>Box 4</p> <p>90</p> <p>88</p> <p>100</p> <p>Box 5</p> <p>40</p> </div> <div> <p>REMARKS</p> <p>(Drilling time, water level, depth of overburden, etc., if significant)</p> </div> </div>								

DRILLING LOG				INSTALLATION		Hole No.		SHEET	
Southwestern				Fort Worth District		209		1 of 2 INSETS	
Aubrey Dam Site				Hole No. 81 Auger 2" Core 6b1					
1. LOCATION (Coordinates or Station)				Hole No. 81 Auger 2" Core 6b1					
2. DRILLING AGENCY				3. DRILLING AGENCY					
Corps of Engineers				Corps of Engineers					
4. NAME OF DRILLER				5. DIRECTION OF HOLE					
R. M. Dunn				VERTICAL					
6. THICKNESS OF OVERBURDEN				7. DEPTH DRILLED INTO ROCK					
19.5				45.5					
8. TOTAL DEPTH OF HOLE				9. REMARKS					
60.0				*Ground water elevation on 16 Dec 1960 was (8.0)					
10. ELEVATION TOP OF HOLE				11. ELEVATION TOP OF HOLE					
610.8				610.8					
12. ELEVATION GROUND WATER				13. ELEVATION GROUND WATER					
9				9					
14. DATE HOLE				15. DATE HOLE					
15 Dec 60				15 Dec 60					
16. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN				17. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN					
3				3					
18. TOTAL NUMBER CORE HOLES				19. TOTAL NUMBER CORE HOLES					
2				2					
20. SIGNATURE OF INSPECTOR				21. SIGNATURE OF INSPECTOR					
ELEVATION				DEPTH		LEGEND		CLASSIFICATION OF MATERIALS	
a				b		c		d	
596.3'				14.5'				Start 2" Core 14.5'	
								14.5' to 25.8' clay, shaly, firm, fine sand lenses thru out, soft sandstone; streak at 16.8, and 22.1, very hard limestone boulder at 17.6'; gray to yellow	
								25.8' to 41.8' SHALE, clayey, firm weathering stains in upper 3.0'; sandy, laminated small fossils thru out dark gray	
								NOTE: Base of weathering at 29.0'. Line seam at 35.0' which is 0.1 thick	
								41.8' to 43.3' SAND, clayey, firm-almost sandstone, distinct bedding, fine to medium gray	
								43.3' to 60.0' SHALE, clayey, sandy firm to medium hard lime boulder at 44.8, very fossiliferous from 47.0 to 51.0, laminated, 4' sandstone at 58.0', dark gray	
								T. D. 60.0'	

DRILLING LOG				INSTALLATION		Hole No.		SHEET	
Southwestern				Fort Worth District		209		1 of 2 INSETS	
Aubrey Dam Site				Hole No. 81 Auger 2" Core 6b1					
1. LOCATION (Coordinates or Station)				Hole No. 81 Auger 2" Core 6b1					
2. DRILLING AGENCY				3. DRILLING AGENCY					
Corps of Engineers				Corps of Engineers					
4. NAME OF DRILLER				5. DIRECTION OF HOLE					
R. M. Dunn				VERTICAL					
6. THICKNESS OF OVERBURDEN				7. DEPTH DRILLED INTO ROCK					
19.5				45.5					
8. TOTAL DEPTH OF HOLE				9. REMARKS					
60.0				*Ground water elevation on 16 Dec 1960 was (8.0)					
10. ELEVATION TOP OF HOLE				11. ELEVATION TOP OF HOLE					
610.8				610.8					
12. ELEVATION GROUND WATER				13. ELEVATION GROUND WATER					
9				9					
14. DATE HOLE				15. DATE HOLE					
15 Dec 60				15 Dec 60					
16. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN				17. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN					
3				3					
18. TOTAL NUMBER CORE HOLES				19. TOTAL NUMBER CORE HOLES					
2				2					
20. SIGNATURE OF INSPECTOR				21. SIGNATURE OF INSPECTOR					
ELEVATION				DEPTH		LEGEND		CLASSIFICATION OF MATERIALS	
a				b		c		d	
605.2'				7.0'				Start 2" core 7.0'	
								7.0' to 14.4' clay, sandy, firm to medium very weathered, horizontal fractures, yellow to t	
								14.4' to 15.8 sandstone, medium hard, fine to grain, massive, tan t	
								15.8' to 22.5 shale, firm to medium hard, containing seams of sand and shale, weathered gray. NOTE: Base of weather zone	
								22.5' to 30.6 shale, sandy, firm laminated, marine fossils, dark t	
								T. D. 30.6'	

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE
MAR 77

REC

DESIGNED BY	DRAWN BY	REVIEWED BY	SUBMITTED BY	ENGINEER

TO ACCOMPLISH

Hole No. 8A2C-10

PROJECT LOG		INSTALLATION	
Southwestern		Fort Worth District	
1. PROJECT		2. HOLE NO. AND TYPE OF PIT	
Aubrey Dam Site		8A2C-10	
3. LOCATION (Coordinates or Station)		4. DATE OF LOG	
		15 Dec 60	
5. DRILLING AGENCY		6. MANUFACTURER'S DESIGNATION OF DRILL	
Corps of Engineers		Falling 1500	
7. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		8. TOTAL NUMBER CORE BORES	
3		2	
9. ELEVATION GROUND WATER		10. DATE HOLE	
0		15 Dec 60	
11. ELEVATION TOP OF HOLE		12. ELEVATION TOP OF HOLE	
610.8		610.8	
13. TOTAL CORE RECOVERY FOR BORING		14. SIGNATURE OF INSPECTOR	
90			

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0			*Ground water elevation on 16 Dec 1960 was (8.0)
0.0 to 14.5'		Start 2" Core 14.5'	
14.5' to 25.8'		14.5' to 25.8' clay, shaly, firm, fine sand lenses thru out, soft sandstone; streak at 16.8, and 22.1, very hard limestone boulder at 17.6'; gray to yellow	
25.8' to 41.8'		25.8' to 41.8' SHALE, clayey, firm weathering stains in upper 3.0'; sandy, laminated small fossils thru out dark gray	
41.8' to 43.3'		NOTE: Base of weathering at 29.0'. Line seen at 35.0' which is 0.1 th thick	
43.3' to 60.0'		41.8' to 43.3' SAND, clayey, firm-almost sandstone, distinct bedding, fine to medium gray	
60.0' to 58.0'		43.3' to 60.0' SHALE, clayey, sandy firm to medium hard lime boulder at 44.8, very fossiliferous from 47.0 to 51.0, laminated, 4' sandstone at 58.0', dark gray	
58.0' to 581.6'			
581.6'			T. D. 60.0'

Hole No. 8A2C-11

PROJECT LOG		INSTALLATION	
Southwestern		Fort Worth District	
1. PROJECT		2. HOLE NO. AND TYPE OF PIT	
Aubrey Dam Site		8A2C-11	
3. LOCATION (Coordinates or Station)		4. DATE OF LOG	
		16 Dec 60	
5. DRILLING AGENCY		6. MANUFACTURER'S DESIGNATION OF DRILL	
Corps of Engineers		Falling 1500	
7. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		8. TOTAL NUMBER CORE BORES	
2		1	
9. ELEVATION GROUND WATER		10. DATE HOLE	
0		16 Dec 60	
11. ELEVATION TOP OF HOLE		12. ELEVATION TOP OF HOLE	
612.2'		612.2'	
13. TOTAL CORE RECOVERY FOR BORING		14. SIGNATURE OF INSPECTOR	
86			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
605.2'	7.0'		Start 2" core 7.0'	
10			7.0' to 14.4' clay, shaly, sandy, firm to medium hard, very weathered, horizontal fractures, yellow to tan	
597.8'	14.4'		14.4' to 15.8 sandstone, medium hard, fine to medium grain, massive, tan to gray	
596.4'	15.8'		15.8' to 22.5 shale, sandy, firm to medium hard, alternating seams of sand stone and shale, weathered tan to gray.	
20			NOTE: Base of weathering zone	
589.7'	22.5'		22.5' to 30.6 shale, clayey, sandy, firm laminated, few marine fossils, dark gray	
581.6'	30.6'		T. D. 30.6'	

RECORD DRAWING-WORK AS BUILT

DESIGNED BY:		RAY ROBERTS LAKE	
DRAWN BY:		ELM FORK, TRINITY RIVER, TEXAS	
REVIEWED BY:		EMBANKMENT, SPILLWAY AND	
SUBMITTED BY:		OUTLET WORKS	
ENGINEER:		LOGS OF BORINGS	
		8A2C-9, 8A2C-10, AND 8A2C-11	
INVITATION NO. DACW 63-02-00026		DATE: MAR, 1962	
CONTRACT NO. DACW 63-97-C-0093		SHEET NO. 12	

TO ACCOMPANY FOUNDATION REPORT

CONTRACT NO. DACW 63-97-C-0093

Hole No. 816G-12

DRILLING LOG		Southwestern		INSTALLATION		Fort Worth		SHEET 1 OF 2 SHEETS	
PROJECT		Aubrey Dam Site No. 1		HOLE NO. AND TYPE OF BIT		8" auger, 5" carbide, 6"		DATE FOR ELEVATION INFORMATION	
LOCATION		Sta. 134.70 - Centerline		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
DRILLING AGENCY		Corps of Engineers		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
HOLE NO. AND TYPE OF BIT		816G-12		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
NAME OF DRILLER		Schoenover		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
DIRECTION OF HOLE		VERTICAL		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
THICKNESS OF OVERBURDEN		13.7		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
DEPTH DRILLED INTO ROCK		37.3		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
TOTAL DEPTH OF HOLE		51.0		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
ELEVATION		LEGEND		CLASSIFICATION OF MATERIALS		REMARKS		SIGNATURE OF INSPECTOR	
0.0' to 13.7'		SAND - - -		0.0 to 10.0 - fine to medium grained, trace clay, brilliant compact, all. moist, red.		10.0 to 13.7 - fine to medium grained, trace of fine-grained, well-rounded gravel (-5%), medium compact to dense, all. moist, red.		13.7' to 26.4'	
13.7' to 26.4'		LESTONIS - - -		13.7 to 23.3 - shaley, highly fossilif., m. hard, thick-bedded, unfractured and unjointed, all. stained to 22.0', gray.		23.3 to 26.4 - very hard, diamond bit used in this section.		26.4' to 51.0'	
26.4' to 51.0'		SAND, non-calc., m. hard, no visible bedding, unjointed and unfractured, occas. siltstone concretions, black.		T.D. - 51.0' -					

DRILLING LOG		Southwestern		INSTALLATION		Fort Worth		SHEET 2 OF 2 SHEETS	
PROJECT		Aubrey Dam Site No. 1		HOLE NO. AND TYPE OF BIT		8" auger, 5" carbide, 6"		DATE FOR ELEVATION INFORMATION	
LOCATION		Sta. 134.70 - Centerline		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
DRILLING AGENCY		Corps of Engineers		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
HOLE NO. AND TYPE OF BIT		816G-13		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
NAME OF DRILLER		Suits		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
DIRECTION OF HOLE		VERTICAL		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
THICKNESS OF OVERBURDEN		43.0		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
DEPTH DRILLED INTO ROCK		52.2		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
TOTAL DEPTH OF HOLE		95.2		HOLE NO. AND TYPE OF BIT		5" 77.1		DATE FOR ELEVATION INFORMATION	
ELEVATION		LEGEND		CLASSIFICATION OF MATERIALS		REMARKS		SIGNATURE OF INSPECTOR	
0.0' to 24.6'		CLAY - - -		0.0 to 6.6 - non-calc., moist, stiff to hard scattered rootlets, black.		6.6 to 12.6 - non-calc., moist, all. sandy, hard scattered rootlets, dk. brown.		12.6 to 24.6 - calc., sandy, hard to 22.6', stiff from 22.6' to 24.6', moist, tan.	
24.6' to 28.6'		SAND, all. clayey, non-calc., moist, medium compact, tan.		28.6' to 39.6'		CLAY, sandy, all. calc., moisture increasing with depth, hardness decreasing with depth, saturated from 36.6', tan.		39.6' to 43.0'	
39.6' to 43.0'		GRAVEL, fine to medium grained, sandy, water-bearing, loose to medium dense.							

1. DATE AND TYPE OF BIT		2. SURF, 6"		3. 6"		4. 6"		5. 6"	
6. DATE AND TYPE OF BIT		7. SURF, 6"		8. 6"		9. 6"		10. 6"	
11. ELEVATION OF SURFACE (FEET) (M)		12. ELEVATION OF SURFACE (FEET) (M)		13. ELEVATION OF SURFACE (FEET) (M)		14. ELEVATION OF SURFACE (FEET) (M)		15. ELEVATION OF SURFACE (FEET) (M)	
16. MANUFACTURER'S DESIGNATION OF DRILL		17. DATE		18. MONTH		19. YEAR		20. DAY	
21. TOTAL C.F. OF OIL		22. TOTAL C.F. OF OIL		23. TOTAL C.F. OF OIL		24. TOTAL C.F. OF OIL		25. TOTAL C.F. OF OIL	
26. TOTAL NUMBER CORROSION		27. TOTAL NUMBER CORROSION		28. TOTAL NUMBER CORROSION		29. TOTAL NUMBER CORROSION		30. TOTAL NUMBER CORROSION	
31. ELEVATION GROUND WATER		32. ELEVATION GROUND WATER		33. ELEVATION GROUND WATER		34. ELEVATION GROUND WATER		35. ELEVATION GROUND WATER	
36. DATE		37. DATE		38. DATE		39. DATE		40. DATE	
41. ELEVATION TOP OF HOLE		42. ELEVATION TOP OF HOLE		43. ELEVATION TOP OF HOLE		44. ELEVATION TOP OF HOLE		45. ELEVATION TOP OF HOLE	
46. TOTAL CORRECTION FOR BONES		47. TOTAL CORRECTION FOR BONES		48. TOTAL CORRECTION FOR BONES		49. TOTAL CORRECTION FOR BONES		50. TOTAL CORRECTION FOR BONES	
51. SIGNATURE OF INSPECTOR		52. SIGNATURE OF INSPECTOR		53. SIGNATURE OF INSPECTOR		54. SIGNATURE OF INSPECTOR		55. SIGNATURE OF INSPECTOR	
CATION OF MATERIALS (Observations)		CATION OF MATERIALS (Observations)		CATION OF MATERIALS (Observations)		CATION OF MATERIALS (Observations)		CATION OF MATERIALS (Observations)	
to 24.6'		A		1. After completion, was bailed to 30.0'. Water level will be in at later date.					
to 6.6' - non-calc., moist, stiff to hard, scattered rootlets, black.		4.5		2. Jar: A. 0.0 to 2.6					
to 12.6' - non-calc., moist, sili. sandy, hard, scattered rootlets, K. brown.		2.5		3. Denison sample: 1. 2.6 to 4.6 2. 4.6 to 6.6 3. 6.6 to 8.6 4. 8.6 to 10.6 5. 10.6 to 12.6 6. 12.6 to 14.6 7. 14.6 to 16.6 8. 16.6 to 18.6 9. 18.6 to 20.6 10. 20.6 to 22.6 11. 22.6 to 24.6 12. 24.6 to 26.6 13. 26.6 to 28.6 14. 28.6 to 30.6 15. 30.6 to 32.6 16. 32.6 to 34.6 17. 34.6 to 36.6 18. 36.6 to 38.6 19. 38.6 to 39.6					
to 24.6' - calc., sandy, hard to 22.6', stiff from 22.6' to 24.6', moist, tan.		4.5		Notes: Jar samples taken from shoe after each depth: Penetration readings shown in column at left					
to 28.6'		4.5		4. Cartons: 1. 4.6 to 47.6 2. 47.6 to 54.8 3. 54.8 to 60.2 4. 60.2 to 66.7 5. 66.7 to 72.5 6. 72.5 to 77.9 7. 77.9 to 83.4 8. 83.4 to 94.4					
sili. clayey, non-calc., med. compact,		4.5		5. 8" casing set to 47.6					
to 39.6'		9		6. Drilling methods: 1. 0.0 to 2.6 - exp. 2. 2.6 to 39.6 - 6" d.b.					
sandy, sili. calc., structure increasing with depth, hardness decreasing with depth, saturated in 36.6', tan.		2.75							
to 43.0'		10							
fine to medium sand, sandy, water-logged, loose to medium		11							
		12							
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		47							

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	SCORE e CORRECTED f	BOX OR SAMPLE NO. g	REMARKS (Dusting, stain, water loss, etc., if significant) h
			-- Augured into primary material @ 43.0' -- Set casing to cleaned out, and started 6" core @ 45.0' --			3. 39.6 to 45.0 - aug 4. 45.0 to 95.2 - 6" carbology.
			45.0' to 93.4'	45.0		
			SHALE, non-calc. to silic. calc. with depth, n. hard, black to gray.	67	1	
			45.0 to 57.2 - thin to medium bedded, with sand separating at sand seams listed below.	65		
			57.2 to 93.4 - core removed from bb'l. as continuous stalks	53.2	2	
			Sandstone, fine-grained, friable, laminated, @ following depths: 45.0 to 45.3, 45.6 (0.1) 51.3 to 52.3, 53.3 (0.1) 54.2 (0.1), 55.4 (0.1) 55.6 (0.1)	09	3	
			@ 58.8' = 0.05 seam of broken shells.	61.2		
			61.2 to 61.7 - zone of numerous broken shells	60	4	
			From 62.8 to 93.4 - occass. thin, poorly- defined, friable sandstone seam.	60	5	
				64		
				73.2	6	
				61		
				77.2	7	
				61		
				81.2		
				61		
				85.2	8	
				61		
				89.2		
				61	9	
			93.4' to 95.2'	03		
			LIDESTONE, shaley, silic. nodular, fossilif., hard gray.	93.2		
				60		
				95.2		
			T.D. - 95.2' -			
						*** Marker bed - see 6DC-14 at 88.4'

SYM	SC
DESIGNED BY	
DRAWN BY	
REVIEWED	
SUBM -	
SNO -	

TO AC

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1. CORE RECOVERED FEET	2. BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of penetration, etc., if significant)
			-- Augered into primary material @ 43.0' -- Set casing to cleaned out, and started 6" core @ 45.0' --	45.0'		3. 39.6 to 45.0 - surty L. 45.0 to 95.2 - 6" carbology.
			45.0' to 93.4'	45.0'		
			SHALE, non-calc. to all calc. with depth, m. hard black to gray.	L C7	1	NOTE: Actual core loss from 45.0' to 53.2' was 14.6%. Hole tape for depth at 53.2'. Loss possibly occurred from 50.5 to 52.0, drilling was very rapid in this zone. 53.2 to 95.2 - core recovery was 98%
			45.0 to 57.2 - thin to medium bedded, with core separating at sand seams listed below.	L C5		
			57.2 to 93.4 - core removed from bb'l. as continuous stalks	53.2 Z	2	
			Sandstone, fine-grained, friable, laminated, O following depths:	09		
			45.0 to 45.3, 45.6 (0.1)	57.2	3	
			51.3 to 52.3, 53.3 (0.1)	57.2		
			54.2 (0.1), 55.4 (0.1)	09		
			55.6 (0.1)	61.2		
			@ 58.8' - 0.05 seam of broken shells.	L	4	
			61.2 to 61.7 - zone of numerous broken shells	C C		*** Marker bed - see 6DC-14 at 56.2 to 56.8
				65.2		
			From 62.8 to 93.4 - occas. thin, poorly- defined, friable sand seams.	L 11	5	
				66.2		
				6		
				04		
				73.2	6	
				L C1		
				77.2		
				G C1	7	
				81.2		
				L O1		
				85.2	8	
				L O2		
				89.2		
				L O3	9	
			93.4' to 95.2'	93.2		
			LIMESTONE, shaley, all. nodular, fossilif., hard gray.	88.2		*** Marker bed see 6DC-14 at 88.4'
				95.2		
			T.D. - 95.2' -			

RECEIVED DRAWING - WINK A. RUIZ

SYM		DL	NO	ACTION	DATE	DESCRIPTION OF REV'S
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS						
DESIGNED BY	RAY ROBERTS LAKE					
DRAWN BY	ELM FORK, TRINITY RIVER, TEXAS					
REVIEWED BY	EMBANKMENT, SPILLWAY AND OUTLET WORKS					
						LOGS OF BORINGS
						8A6C-12 AND 6 DC-13
SUBMITTED BY				INVITATION NO. SACRWS-820-0025 DATE MAR. 1982		
ENGINEER				CONTRACT NO. SACRWS-84 C 0013		
				DRAWN BY N. USER		
						13

TO ACCOMPANY FOUNDATION REPORT

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1. CORE RECORD NO.	BOX OR SAMPLE NO.	REMARKS (Drilling time, motor load, depth of penetration, etc., if significant)
			38.3' to 44.2'			Cartons: 1. 47.2 to 48.0 2. 48.0 to 49.0 3. 49.0 to 50.0 4. 50.0 to 50.6 5. 50.6 to 51.6 6. 51.6 to 52.6 7. 52.6 to 53.6 8. 53.6 to 54.6 9. 54.6 to 55.5 10. 55.5 to 56.5 11. 56.5 to 57.3 12. 57.3 to 58.2 13. 58.2 to 59.1 14. 59.1 to 59.9 15. 59.9 to 61.0 16. 61.0 to 61.9 17. 61.9 to 62.7 18. 62.7 to 63.9 19. 63.9 to 65.0 20. 65.0 to 66.0 21. 66.0 to 66.9 22. 66.9 to 68.1 23. 68.1 to 69.0 24. 69.0 to 69.9 25. 69.9 to 70.7 26. 70.7 to 71.8 27. 71.8 to 72.9 28. 72.9 to 73.2 29. 73.2 to 75.1 30. 75.1 to 76.1 31. 76.1 to 77.1 32. 77.1 to 78.1 33. 78.1 to 79.1 34. 79.1 to 80.0 35. 80.0 to 81.0 36. 81.0 to 82.0 37. 82.0 to 82.8 38. 82.8 to 83.8 39. 83.8 to 84.8 40. 84.8 to 85.8 41. 85.8 to 86.8 42. 86.8 to 87.4 43. 87.4 to 88.2 44. 88.2 to 88.9 45. 88.9 to 89.9
			SAID and GRAVEL, (recovered only trace in bottom of can 17.), logged by drill action and cuttings.			
			-- Drilled into primary material @ 44.2', set casing to 46.0', cleaned out, and started 8" core @ 47.2' -			
			47.2' to 88.4'			
			SHALE, all. to non-calc., sandy, hard (pen. # 4.5), thin to medium bedded from 75.1' to 88.4', unjointed and unfractured, unweathered, gray.			
			Sedimentary features:			
			Sandstone beds at the following depths:			
			47.5 to 47.8, 48.0 to 48.3, 48.6 to 48.9, 49.4 to 49.7, 50.7 to 51.1, 57.3 to 57.6, 59.1 to 59.3, 62.8 to 63.1, 64.8 to 65.0, 65.6 to 65.9, 67.4 to 67.6, 70.8 to 70.9, 71.3 to 71.5, 73.0 to 73.2, 74.7 to 74.9, 79.1 to 79.2, 81.2 to 81.4. Most beds were soft and crumbly, crushed with moderate amount of finger pressure.			
			56.2 to 56.8 - highly fossilif. section, very calc. Possible marker bed - see 60C-15			
			Structural features:			
			None			
			88.4' to 90.0'			
			Limestone, all. shaly, nodular, fossilif., hard, gray.			
			T.D. - 90.0' -			
			Core was separated at the following depths:			
			47.5, 47.9, 48.3, 49.4, 49.7, 50.7, 50.9, 51.0, 51.1, 51.4, 51.6, 53.1, 54.1, 55.5, 57.3, 59.2, 60.1, 61.2, 62.0, 62.8, 63.1, 63.9, 64.8, 65.0, 65.9, 66.9, 67.2, 67.5, 70.2, 70.8, 71.3, 71.5, 71.7, 72.9, 74.6, 74.9, 75.1, 84.5 - Note that core was removed as continuous talks from 72.1'.			

DRILLING LOG				Hole No. 60C-15		SHEET 2 OF 2 SHEETS	
1. PROJECT Aubrey Dam Site No. 1				INSTALLATION Fort Worth			
2. LOCATION (Commence or End)				H. SIZE AND TYPE OF BIT 8" SURF, 6" d.b., 6" d.b.			
3. DRILLING AGENCY Corro of Engineers				11. DATE FOR ELEVATION (1950 or 1951) Pilling 1500			
4. HOLE NO. (If shown on drawing, state hole number) 60C-15				12. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN 16			
5. NAME OF DRILLER Schoonover				13. TOTAL NUMBER CORE BOXES 5			
6. DIRECTION OF HOLE VERTICAL				14. ELEVATION OF SURFACE WATER 8000			
7. THICKNESS OF OVERBURDEN 38.7				15. DATE HOLE 27 Sept. 71			
8. DEPTH DRILLED INTO ROCK 22.5				16. ELEVATION TOP OF HOLE 558.18			
9. TOTAL DEPTH OF HOLE 61.2				17. TOTAL CORE RECOVERY FOR BORING 95.0%			
ELEVATION				18. SIGNATURE OF INSPECTOR James E. Carter			
DEPTH				19. CORE RECOVERY NO.			
LEGEND				20. BOX OR SAMPLE NO.			
CLASSIFICATION OF MATERIALS (Description)				REMARKS (Drilling time, water loss, depth of penetration, etc., if significant)			
0.0' to 38.7'				1. After completion, casing pulled, and hole balled to 55.0'. Water check after 24 hrs. was 24.0'.			
CLAY, calc., all. moist to 6.7', with gradual moisture increase with depth, hard to 8.7' with strength decreasing with depth (Note penetrometer tests in remarks column), brown to tan.				2. Jars: A. 0.0 to 2.7 Jar samples taken from Denison bbl shoe except where noted by an asterisk.			
38.7' to 38.7' - no recovery except for a fine to med. grained Sand from 38.2' to 38.7' loose, trace clay, gray				2. Denison cans: Depth Time, min.			
-- Drilled into primary material @ 38.7', set casing to 40.0', cleaned out, and started 6" core @ 40.7' --				1. 2.7 - 4.7 4.5 2. 4.7 - 6.7 4.25 3. 6.7 - 8.7 4.5 4. 8.7 - 10.7 4.25 5. 10.7 - 12.7 " 6. 12.7 - 14.7 " 7. 14.7 - 16.7 3.75 8. 16.7 - 18.7 " 9. 18.7 - 20.7 " 10. 20.7 - 22.7 " 11. 22.7 - 24.7 3.0 12. 24.7 - 26.7 " 13. 26.7 - 28.7 " 14. 28.7 - 30.7 2.75 15. 30.7 - 32.7 1.75 16. 32.7 - 34.7 1.75			
40.7' to 61.2'				Note: Can #8 - sample slipped out on initial retrieve and was recovered on second attempt. Can #15 - poor recovery. Lost 1.0			
SHALE, all. to non-calc., sandy, hard (pen. # 4.5), medium to thin-bedded, unjointed and unfractured (except where noted), unweathered, gray.				2. Cartons: 1. 41.1 to 41.9 2. 47.5 to 48.5 3. 52.2 to 53.2 4. 56.8 to 57.7 5. 58.5 to 59.5			
Sedimentary features:				5. 8" casing set to 40.7'.			
Sandstone at the following depths:				6. Drilling methods: 1. 0.0 to 2.7 - 8" string 2. 2.7 to 40.7 - d. bbl. 3. 40.7 to 61.2 - 6" d.b.			
42.6 to 43.3 - laminated shaly, all. fissile, crumbly.				1			
43.3 to 44.0 - scattered concretions.				2			
53.2 to 53.4 - laminated, shaly, all. fissile.				3			
55.0 to 56.1 - laminated, shaly, all. fissile.				4			
48.5 to 49.1 - highly fossilif. (broken shells), calc. possible marker bed				5			
T.D. - 61.2' -				6			
				See 60C-14, 56.2 to 57.8			

Hole No. 6DC-15	
Location Southwestern	INSTALLATION Fort Worth
No. 1	11 DATE AND TYPE OF BIT 8" SURF, 6" d.b., 6" carbide core
Lineers 6DC-15	12 MANUFACTURER'S DESIGNATION OF DRILL Palling 1500
	13 TOTAL NO. OF OVER- BURNED SAMPLES TAKEN 16 16
	14 TOTAL NUMBER CORE BORES 5
	15 ELEVATION GROUND WATER 8000
	16 DATE HOLE 21 Sept. 71 : 24 Sept. 71
	17 ELEVATION TOP OF HOLE 558.48
	18 TOTAL CORE RECOVERY FOR BORING 91.0%
	19 SIGNATURE OF INSPECTOR R. H. Roberts
CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water used, depth of penetration, etc., if significant)
0.0' to 38.7'	1. After completion, casing was pulled, and hole was bailed to 55.0'. Water check after 24 hrs. was 22.0'.
CLAY, calc., sil. moist to 6.7', with gradual moisture increase with depth, hard to 8.7' with strength decreasing with depth (Note penetrometer tests in remarks column), brown to tan.	2. Jars: A. 0.0 to 2.7 Jar samples taken from Denison bb'l shoe except where noted by an asterisk.
	3. Denison cans. Depth Penet. test
	1. 2.7 - 4.7 4.5
	2. 4.7 - 6.7 4.25
	3. 6.7 - 8.7 4.5
	4. 8.7 - 10.7 4.25
	5. 10.7 - 12.7 "
	6. 12.7 - 14.7 "
	7. 14.7 - 16.7 3.75
	8. 16.7 - 18.7 "
	9. 18.7 - 20.7 "
	10. 20.7 - 22.7 "
	11. 22.7 - 24.7 3.0
	12. 24.7 - 26.7 "
	13. 26.7 - 28.7 "
	14. 28.7 - 30.7 2.75
	15. 30.7 - 32.7 1.75
	16. 32.7 - 34.7 1.75
	Note: Can #8 - sample slipped out on initial retrieve and was recovered on second attempt. Can #15 - poor recovery. Lost 1.0'
34.7' to 38.7' - no recovery except for a fine to med. grained sand from 38.2' to 38.7' loose, trace clay, gray.	4. Cartons: 1. 41.1 to 41.9 2. 47.5 to 48.5 3. 52.2 to 53.2 4. 56.8 to 57.7 5. 58.5 to 59.5
-- Drilled into primary material @ 38.7', set casing to 40.0', cleaned out, and started 6" core @ 40.7' --	5. 8" casing set to 40.7'.
	6. Drilling methods: 1. 0.0 to 2.7 - 8" auger 2. 2.7 to 40.7 - d. bail. 3. 40.7 to 61.2 - 6" core
40.7' to 61.2'	
SPALLS, sil. to non-calc. sandy, hard (pen. # 4.5), medium to thin-bedded, unjointed and unfractured (except where noted), unweathered, gray.	Structural features: In the upper 10ft., core seems to have a slight dip (approx. 5'). 0.2' fracture with poorly formed slickensides at 56.4'.
Sedimentary features: Sandstone at the following depths: 42.6 to 43.3 - laminated, shaly, sil. fissile, crumbly. 43.3 to 44.0 - scattered concretions. 53.2 to 53.6 - laminated, shaly, sil. fissile. 55.0 to 56.1 - laminated, shaly, sil. fissile. 48.5 to 49.1 - highly fossilifer. (broken shells), calc. possible marker bed. T.D. - 61.2' -	

RECORD DRAWING - CIVIL ENGINEER

SYM	DC	NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY	RAY ROBERTS LAKE				
DRAWN BY	ELM FORK, TRINITY RIVER, TEXAS				
REVIEWED BY	EMBANKMENT, SPILLWAY AND				
SUBMITTED BY	OUTLET WORKS				
ENGINEER	LOGS OF BORINGS				
INVITATION NO. DACW63-82-E-0025			DATE MAR. 1982		SEQUENCE NO. 14
CONTRACT NO. DACW63-82-C-0083			SHEET NO. 14		OF 14
DRAWING NUMBER			SHEET NO. 14		OF 14

TO ACCOMPANY FOUNDATION REPORT

Drilling Log Form 100-16

Project: **Aubrey Dam Site No. 1**

Location: **Southwestern**

Drilling Agency: **Corps of Engineers**

Drill No. (See notes on boring times and logs): **60C-17**

Name of Driller: **Schoonover**

Direction of Hole: ☒ Vertical ☐ Inclined (See from vert)

Thickness of Overburden: **35.0**

Depth Drilled into Rock: **12.0**

Total Depth of Hole: **50.0**

Classification of Materials (Designated):

0.0' to 3.0' **CLAY, SILTY, SAT. MOIST; HARD, ROOT ZONE; DARK BROWN**

3.0' to 19.6' **CLAY, WITH TRACE OF SILT; W/ CALC. NODULES; W/ OCEANIC WATER; MOIST; HARD; BROWN**

19.6' to 29.6' **CLAY, SILTY, W/ CALC. NODULES; MOIST, V. STIFF; BROWN TO GRAY BROWN**

29.6' to 32.0' **CLAY, WITH TRACE OF SILT; FINE SAND; MOIST; V. STIFF; BROWN-TAN**

32.0' to 37.6' **CLAY, SILTY, V. MOIST, V. STIFF; DOWN TO STIFF; BROWN-TAN**

37.6' to 39.0' **SAND, CLAYEY, W/ SCAT. GRAVEL; FINE TO MED. GRAIN; MOD. FIRM; SATD; RUST BROWN**

39.0' to 40.5' **SANDSTONE-SANDY SHALE; UNWEATHED; SURF. THIN SS. LENSES ALTERNATING WITH SOFT SANDY SHALE; MOIST; BLUE GRAY**

40.5' to 50.0' **SHALE, ESS. UNWEATHED; W/ SANDY LAMINATIONS; W/ SCAT. SILT CONCRETIONS, E. 55.1; SILT. MOIST; SOFT (POCKCLASS); BLUE GRAY**

T.D. 50.0'

Remarks:

I. DRILLING:

0.0' - 2.6' **8" FLIGHT AUGER**

2.6' - 32.6' **6" DENISON**

32.6' - 41.0' **8" FLIGHT AUGER**

41.0' - 50.0' **6" COR. BARREL**

II. SAMPLES:

0.0' - 2.6' **A**

2.6' - 32.6' **B**

32.6' - 41.0' **C**

41.0' - 50.0' **D**

III. WATER LEVEL:

Flowing Barrel to 24.0' **16.0**

Water Level at 24.0' **16.0**

IV. DEPTH & WEIGHT:

MAX. WEIGHT TO 38.0' **42.0**

V. MISC:

POCKET PENETROMETER READINGS ARE IN COLUMN 16. ALSO JAR SAMPLES WERE TAKEN FROM DENISON SHALE.

Drilling Log Form 100-16

Project: **Aubrey Dam Site No. 1**

Location: **Southwestern**

Drilling Agency: **Corps of Engineers**

Drill No. (See notes on boring times and logs): **60C-17**

Name of Driller: **Schoonover**

Direction of Hole: ☒ Vertical ☐ Inclined (See from vert)

Thickness of Overburden: **23.5**

Depth Drilled into Rock: **26.5**

Total Depth of Hole: **50.0**

Classification of Materials (Designated):

0.0' to 5.5' **SAND, fine-grained, clayey, hard, sil. moist, brown**

5.5' to 22.0' **CLAY, sandy, non-calc., sil. moist, hard, mottled tan and gray**

22.0' to 23.5' **CLAY, calc., w/ scattered gravel and well-rounded siltstone concretions, moist, medium to stiff, tan**

23.5' to 25.0' **Augered into primary material @ 23.5', set casing to 25.0', cleaned out, and started 6" core @ 25.2'**

25.2' to 50.0' **SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilifer, unjointed and unfractured to T.D., unweathered, gray**

Shale sandstone beds at the following depths:

27.0 to 27.4 - laminated

36.8 to 37.1 - "

42.0 to 42.9 - " and sil. fissile. Zone badly washed by core bit, action.

T.D. - 50.0' -

Remarks:

1. After core was pulled, 2. check

2. Jar A. 0.0 to 2.6'

3. Denison core

1. 2.7 to 4.1

2. 4.7 to 6.1

3. 6.7 to 8.1

4. 8.7 to 10.1

5. 10.7 to 12.1

6. 12.7 to 14.1

7. 14.7 to 16.1

8. 16.7 to 18.1

9. 18.7 to 20.1

10. 20.7 to 22.1

Notes: Jar sample from shoe at sample depth

4. Cartons:

1. 27.4 to 28.8

2. 31.6 to 33.0

3. 38.8 to 40.2

4. 43.8 to 45.2

5. Shale west 24.9'

6. 8" casing 25.0'

7. Drilling

1. 0.0 to 2.6

2. 2.7 to 22.0

3. 22.7 to 24.1

4. 26.2 to 27.6

Drilling Log Form 1836, Hole No. 6DC-17, Southwest Division, Port North, Project: Aubrey Dam Site No. 1. The log details a 50.0' deep hole with various soil layers including sand, clay, and shale. It includes a detailed classification of materials and a list of samples taken at various depths.

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS
0.0'	0.0'		SAND, fine-grained, clayey, hard, sil. moist, brown.	1. After completion, hole was bailed to 45.0' with casing pulled. 24 hour check.
5.5'	5.5'		CLAY, sandy, non-calc., sil. moist, hard, mottled tan and gray.	2. Jar 1 A. 0.0 to 2.7
10.0'	10.0'		CLAY, calc., w/ scattered gravel and well-rounded siltstone concretions, moist, medium to stiff, tan.	3. Denison cans: 1. 2.7 to 4.7, 2. 4.7 to 6.7, 3. 6.7 to 8.7, 4. 8.7 to 10.7, 5. 10.7 to 12.7, 6. 12.7 to 14.7, 7. 14.7 to 16.7, 8. 16.7 to 18.7, 9. 18.7 to 20.7, 10. 20.7 to 22.7
22.0'	22.0'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	4. Cartons: 1. 27.4 to 28.4, 2. 31.6 to 32.6, 3. 38.8 to 39.7, 4. 43.8 to 44.5, 5. 49.0 to 50.0
26.2'	26.2'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	5. Shale weathered to 24.9'.
30.0'	30.0'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	6. 8" casing set to 25.0'.
35.0'	35.0'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	7. Drilling methods: 1. 0.0 to 2.7 - auger, 2. 2.7 to 22.7 - d. b., 3. 22.7 to 26.2 - auger, 4. 26.2 to 50.0 - 6" core
40.0'	40.0'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	
45.0'	45.0'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	
50.0'	50.0'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	

Drilling Log Form 1836, Hole No. 6DC-18, Southwest Division, Port North, Project: Aubrey Dam Site No. 1. The log details a 30.0' deep hole with various soil layers including sand, clay, and shale. It includes a detailed classification of materials and a list of samples taken at various depths.

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS
0.0'	0.0'		SAND, fine-grained, clayey, hard, sil. moist, brown.	I. DRILLING: 8" AUGER HUGER 0.0' - 1.6', 6" DENISON 1.6' - 19.6', 8" AUGER HUGER 19.6' - 20.0', 10" AUGER C JAR CASING TO 20.0', CLEANED OUT CASING TO 21.2', 6" CORE BARREL: 21.1' - 30.0'
5.5'	5.5'		CLAY, sandy, non-calc., sil. moist, hard, mottled tan and gray.	II. SAMPLES: 1. 0.0' - 1.0', 2. 1.0' - 1.6', 3. 1.6' - 19.6', 4. 19.6' - 20.0', 5. 20.0' - 21.2', 6. 21.2' - 22.7', 7. 22.7' - 24.5', 8. 24.5' - 26.2', 9. 26.2' - 27.2', 10. 27.2' - 28.4', 11. 28.4' - 29.7', 12. 29.7' - 30.0'
10.0'	10.0'		CLAY, calc., w/ scattered gravel and well-rounded siltstone concretions, moist, medium to stiff, tan.	III. WATER LEVEL: BORING BAILED TO 29.2' ON 21" OF 8" SET & LEFT OPEN 24 HOURS; WATER LEVEL AT 15.6'
22.0'	22.0'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	IV. DEPTH OF WEATH.: NAT'L. WEATH. TO 28.2'
26.2'	26.2'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	V. MISC. ROCKY PENETRATING READINGS IN COLUMN "P" AND JAR SAMPLES WERE TAKEN FROM DENISON SHOE.
30.0'	30.0'		SHALE, sandy, non-calc., hard (penetrometer 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	

Sheet No. 6DC-16

PROJECT: S.W.D. END

NO. SIZE AND TYPE OF BIT: 6" CAPAC-1

DATE: 7 SEPT 71

LOCATION: 1500

MANUFACTURER'S DESIGNATION OF DRILL: FAIRING 1500

TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 3

TOTAL NUMBER CORE BOXES: 2

ELEVATION GROUND WATER: 595.11

DATE MOLE: 7 SEPT 71

ELEVATION TOP OF MOLE: 595.11

TOTAL CORE RECOVERY FOR BORING: 95

SIGNATURE OF INSPECTOR: J. R. P.

CLASSIFICATION OF MATERIALS (Description):

0.0' to 1.0': CLAY: SILTY, W/TRACE OF FINE SAND, STIFF, SL. MOIST, ROOT ROAD, DARK BROWN.

1.0' to 6.6': CLAY: W/TRACE OF FINE SAND & SILT, W/CARBON STAINS, MOIST, V. STIFF DOWN TO HARD, RUST BROWN.

6.6' to 10.0': CLAY: SANDY, W/CARBON STAINS, MOIST, V. STIFF, RUST BROWN.

10.0' to 12.6': CLAY: V. SANDY, W/TRACE TO MEDIUM SAND, V. MOIST, STIFF TO V. STIFF, RUST BROWN.

12.6' to 14.6': SAND: FINE TO MED. GRAIN, W/TRACE OF SAND & CLAY, RUSTY, V. MOIST, RUST BROWN.

14.6' to 18.2': SAND-GRAVEL: GRAINED SAND, W/ FINE TO COARSE GRAVEL, W/TRACE OF FINE SAND, RUSTY, RUSTY.

18.2' to 30.0': SAND: MOD. WEATH. DOWN TO ASS. UNWEATH. W/ SANDY LAMINATIONS & OCCASIONAL SANDSTONE FRAGMENTS IN UPPER THREE FEET; W/ TRACED SL. MOIST; SOFT (RACK CLASS); WEATH. ZONE DOWN TO GRAY BROWN W/ RUSTY YELLOW UNWEATH. ZONE IS BLISH GRAY.

30.0' to 32.2': MOD. WEATH. 25.2' to 30.0' UNWEATH. 27.2' to 32.2' 1/2" PLAC 27.2' to 30.0' T.D. 30.0'

REMARKS:

I. DRILLING:

8" FLIGHT AUGER:

0.0' - 1.6'

6" DESIGN:

1.6' - 6.6'

8" FLIGHT AUGER:

6.6' - 30.0'

CLEANED OUT WITH 10" AUGER & SET CASING TO 30.0'

CLEANED OUT CASING TO 21.2'

6" CORE BARREL:

21.2' - 30.0'

II. SAMPLES:

A. 0.0' - 1.0'

B. 1.6' - 3.6'

C. 5.6' - 7.6'

D. 7.6' - 12.6'

E. 12.6' - 14.6'

F. 14.6' - 18.2'

G. 18.2' - 21.2'

H. 21.2' - 30.0'

NOTE: LAST SAMPLE FROM 26' - 10.6' DESIGN SAMPLE DISTURBED FROM 12.6' - 14.6' TOOK FOR SAMPLE

C-1: 22.4' - 23.4'

C-2: 26.2' - 27.2'

III. WATER LEVEL:

4 BORING BARRELS TO 29.2' ON P.M. OF 8 SEP 71 LEFT OPEN 24 HOURS; WATER LEVEL AT 15.6'

IV. DEPTH OF WEATH.:

MAX. WEATH. TO 20.2'

V. MISC.:

POCKET DEFORMATION READINGS IN COLUMN "B" AND THE SAMPLES WERE TAKEN FROM DESIGN SHOT.

Sheet No. 6DC-17

PROJECT: S.W.D. END

NO. SIZE AND TYPE OF BIT: 6" CAPAC-1

DATE: 7 SEPT 71

LOCATION: 1500

MANUFACTURER'S DESIGNATION OF DRILL: FAIRING 1500

TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 3

TOTAL NUMBER CORE BOXES: 2

ELEVATION GROUND WATER: 595.11

DATE MOLE: 7 SEPT 71

ELEVATION TOP OF MOLE: 595.11

TOTAL CORE RECOVERY FOR BORING: 95

SIGNATURE OF INSPECTOR: J. R. P.

CLASSIFICATION OF MATERIALS (Description):

0.0' to 15.0': CLAY, non-calc., moist, stiff to hard, sil. sand, tan and gray.

15.0' to 22.0': GRAVEL (max. size 1"), clayey, sil. sandy, med. dense, tan.

22.0' to 43.0': SHALE, sil. calc., med. to h. hard, medium bedded, unjointed and unfractured, tan to gray.

43.0' to 45.0': Limestone, very fossiliferous, n. hard, from 31.5' to 31.6'.

REMARKS:

1. After completion, hole was sealed to 13.0', 3" I.D. plastic pipe was placed to T.D.

2. Jars:

A. 0.0 to 1.0

B. 1.0 to 3.5

C. 3.5 to 6.0

D. 6.0 to 11.0

E. 11.0 to 15.6

Jar samples were taken from selected continuous Shelby tube samples to 15.6'.

3. Contents:

1. 24.5 to 35.5

2. 35.5 to 31.5

3. 31.5 to 31.5

4. 41.0 to 42.0

4. Weathered to 7.6'

5. Piston drilled from 15.6 to 22.0.

* Subsequent exploration suggests that a portion of the interval between 15.0 and 22.0 feet is composed of the following:

Limestone, hard, massive, weath. white and yellow-brown, fossiliferous.

RECORD DRAWING-WORK. A. R. J. L. T.

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND
OUTLET WORKS
LOGS OF BORINGS
6DC-16, 6DC-17, 6DC-18, AND 6A4C-19

CONTRACT NO. DACW63-82-C-0025 DATE MAR. 1982

ENGINEER: J. R. P.

SHEET NO. 15

TO ACCOMPANY FOUNDATION REPORT

Hole No. 6440-20

DRILLING LOG		INSTALLATION		
Southwestern		Fort Worth		
1. PROJECT: Aubrey Dam Site		10. HOLE AND TYPE OF BIT: 6" auger, 4" carbide		
2. LOCATION (Compass or UTM): Right abutment - stilling basin		11. DATE OF ELEVATION MEASUREMENT: May 72		
3. DRILLING AGENCY: Corps of Engineers		12. MANUFACTURER'S IDENTIFICATION OF DRILL: Pulling 36		
4. HOLE NO. (See program on drawing sheet and site number): 6440-20		13. TOTAL NO. OF CORES: 5		
5. NAME OF DRILLER: Cronin		14. ELEVATION GROUND WATER: 5000		
6. DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. DATE MOLE: 18 May 72		
7. THICKNESS OF OVERBURDEN: 31.7		16. ELEVATION TOP OF HOLE: 526.95		
8. DEPTH DRILLED INTO ROCK: 20.5		17. TOTAL CORE RECOVERY FOR BORING: 88.6%		
9. TOTAL DEPTH OF HOLE: 52.2		18. DESCRIPTION OF TESTS: None		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water flow, depth of overburden, etc., if significant)
52.2	0.0'	A	CLAY -	1. After completion, hole was bailed to 42.1'.
52.0	0.0' to 1.3'	B	0.0' to 1.3' - sil. calc. moist, stiff, brown.	3" I.D. perforated plastic casing was placed to T.D.
51.8	1.3' to 4.1'	C	1.3' to 4.1' - non-calc., moist, stiff, mottled, brown, tan.	
51.6	4.1' to 7.8'	D	4.1' to 7.8' - increase in sand content, med., moist, tan.	2. Jars:
51.4	7.8' to 19.0'	E	7.8' to 19.0' - non-calc., moist, stiff, tan.	A. 0.0 to 1.0 B. 2.0 to 3.0 C. 5.0 to 6.0 D. 10.0 to 11.0 E. 15.0 to 16.0
51.2	19.0' to 21.8'		19.0' to 21.8' - Limestone, stained, n. hard jointed, tan.	Jar samples selected from continuous shell tube samples through overburden.
51.0	21.8' to 47.0'		21.8' to 47.0' - SHALE -	3. Cartons:
50.8	21.8' to 22.8'	1	21.8' to 22.8' - sil. calc., stiff, weathered, tan.	1. 21.8 to 22.8 2. 26.2 to 27.2 3. 30.0 to 31.0 4. 33.6 to 34.6 5. 42.5 to 43.4
50.6	22.8' to 47.0'	2	22.8' to 47.0' - sil. calc., stiff to hard, unjointed and unfractured except from 24.0 to 24.5, sil. sandy, gray.	4. Weathered to 22.8
50.4	36.0' to 36.1'	3	36.0' to 36.1' - highly fossilif.	
50.2	40.6' to 42.1'	4	40.6' to 42.1' - SANDSTONE soft, with SHALE laminae, tan.	
50.0	T.D. - 47.0'	5	T.D. - 47.0'	

Hole No. 6440-21

DRILLING LOG		INSTALLATION		
Southwestern		Fort Worth		
1. PROJECT: Aubrey Dam Site		10. HOLE AND TYPE OF BIT: 6" auger, 4" carbide		
2. LOCATION (Compass or UTM): Right abutment - stilling basin		11. DATE OF ELEVATION MEASUREMENT: May 72		
3. DRILLING AGENCY: Corps of Engineers		12. MANUFACTURER'S IDENTIFICATION OF DRILL: Pulling 1500		
4. HOLE NO. (See program on drawing sheet and site number): 6440-21		13. TOTAL NO. OF CORES: 8		
5. NAME OF DRILLER: Cronin		14. ELEVATION GROUND WATER: 5000		
6. DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. DATE MOLE: 18 May 72		
7. THICKNESS OF OVERBURDEN: 31.7		16. ELEVATION TOP OF HOLE: 581.04		
8. DEPTH DRILLED INTO ROCK: 20.5		17. TOTAL CORE RECOVERY FOR BORING: 581.04		
9. TOTAL DEPTH OF HOLE: 52.2		18. DESCRIPTION OF TESTS: None		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water flow, depth of overburden, etc., if significant)
581.04	0.0'	A	CLAY, non-calc., sandy, moist, stiff, tan to gray.	1. After hole was and 3" I plastic, to T.D.
580.8	0.0' to 23.7'	B	0.0' to 23.7' - CLAY, non-calc., sandy, moist, stiff, tan to gray.	
580.6	23.7' to 28.2'	C	23.7' to 28.2' - SAND, clayey, moist, n. dense, tan and gray.	2. Jars:
580.4	28.2' to 29.2'	D	28.2' to 29.2' - GRAVEL, sandy, max. size - 3/4", well-rounded, moist, tan.	A. 0.0 to 1.0 B. 2.0 to 3.0 C. 5.0 to 6.0 D. 10.0 to 11.0 E. 15.0 to 16.0
580.2	29.2' to 31.7'	E	29.2' to 31.7' - Drilled into unweathered primary material @ 29.2'	Jar as select contin sample burden
580.0	31.7' to 52.2'	F	31.7' to 52.2' - SHALE, sil. calc., unwea. n. hard, thick-bedded, sil. sandy, once jointed zones below 42.1', gray.	3. Cartons:
579.8	40.6' to 42.1'	G	40.6' to 42.1' - SANDSTONE soft, with SHALE laminae, tan.	1. 36.2 2. 42.1 3. 45.2 4. 50.0
579.6	T.D. - 52.2'	H	T.D. - 52.2'	4. Primary not wea

Hole No. 6440-21		SHEET 1 of 2 SHEETS	
NG LOG	Southwestern	INSTALLATION	Fort Worth
Project	Aubrey Dam Site	10. HOLE AND TYPE OF BIT	3" Shelby 4" Core
Location	Not Shown	11. DATE FOR ELEVATION	12-17-72
Subunit	stillling basin	12. MANUFACTURER'S IDENTIFICATION OF DRILL	Pulling 1500
Agency	Corps of Engineers	13. TOTAL NO. OF CORES	8
Drilling Agency	Corps of Engineers	14. TOTAL NUMBER OF CORES	5
Hole No.	6440-21	15. ELEVATION OF GROUND WATER	0000
Driller	Bill Stanton	16. DATE HOLE	5 May 72
Tester	Trinity Engineering Testing Corporation	17. ELEVATION TOP OF TUBE	581.04
Direction of Hole	Vertical	18. ELEVATION TOP OF TUBE	514.72
Thickness of Overburden	30.6	19. TOTAL CORE RECOVERY FOR BORING	99.6
Depth Drilled into Rock	69.4	20. TOTAL CORE RECOVERY FOR BORING	99.6
Total Depth of Hole	100.0	21. SIGNATURE OF INSPECTOR	See Note 1 under "Remarks"
ELEVATION		LEGEND	
CLASSIFICATION OF MATERIALS		REMARKS	
0.0' to 23.7'	CLAY, non-calc., sandy, moist, stiff, tan to gray.	1. After completion, hole was bailed to and 3" I.D. perforated plastic pipe was placed to F.D.	
23.7' to 28.2'	SAND, clayey, moist, m. dense, tan and gray.	2. Jars: A. 0.0 to 1.0 B. 2.0 to 3.0 C. 5.0 to 6.0 D. 10.0 to 11.0 E. 15.0 to 16.0 F. 20.0 to 21.0 G. 25.0 to 26.0 H. 29.0 to 30.2	
28.2' to 29.2'	GRAVEL, sandy, max. size 3/4", well-rounded, moist, tan.	Jar samples were selected from continuous shaly tube samples through overburden.	
31.7' to 52.2'	SHALE, sil. calc., unves. n. hard, thick-bedded, sil. sandy, some jointed zones below 42.1', gray	3. Cartons: 1. 35.2 to 37.2 2. 42.1 to 43.1 3. 45.2 to 46.2 4. 50.0 to 50.9	
40.6' to 42.1'	SANDSTONE soft, with SHALE laminae, tan.	4. Primary material was not weathered.	
52.2' to 52.2'			

Hole No. 354C-21A		SHEET 1 of 3 SHEETS	
DRILLING LOG	Southwestern	INSTALLATION	Fort Worth
Project	Aubrey Dam Site No. 1	10. HOLE AND TYPE OF BIT	3" Shelby 4" Core
Location	Not Shown	11. DATE FOR ELEVATION	12-17-72
Subunit	stillling basin	12. MANUFACTURER'S IDENTIFICATION OF DRILL	DAMCO Model 1250
Agency	Corps of Engineers	13. TOTAL NO. OF CORES	7
Drilling Agency	Corps of Engineers	14. TOTAL NUMBER OF CORES	11
Hole No.	354C-21A	15. ELEVATION OF GROUND WATER	See Note 2
Driller	Bill Stanton	16. DATE HOLE	12-6-72
Tester	Trinity Engineering Testing Corporation	17. ELEVATION TOP OF TUBE	579.74
Direction of Hole	Vertical	18. ELEVATION TOP OF TUBE	579.74
Thickness of Overburden	30.6	19. TOTAL CORE RECOVERY FOR BORING	93.2
Depth Drilled into Rock	69.4	20. TOTAL CORE RECOVERY FOR BORING	93.2
Total Depth of Hole	100.0	21. SIGNATURE OF INSPECTOR	See Note 1 under "Remarks"
ELEVATION		LEGEND	
CLASSIFICATION OF MATERIALS		REMARKS	
577.74	Brown Clay	100 W1	3" Shelby Tube
573.74	Reddish Brown Sandy Clay	100 W2	Samples 0.0'-28.0'
573.74	6.0'	100 W3	JAR SAMPLES
573.74	6.0'	100 W4	1. 2.0'-3.0'
573.74	6.0'	100 W5	2. 6.0'-7.0'
573.74	6.0'	100 W6	3. 10.0'-11.0'
573.74	6.0'	100 W7	4. 14.0'-15.0'
573.74	6.0'	100 W8	5. 18.0'-19.0'
573.74	6.0'	100 W9	6. 22.0'-23.0'
573.74	6.0'	100 W10	7. 26.0'-27.0'
573.74	6.0'	100 W11	8. 30.0'-31.0'
573.74	6.0'	100 W12	WRAP SAMPLES
573.74	6.0'	100 W13	1. 0.0'-1.0'
573.74	6.0'	100 W14	2. 1.0'-2.0'
573.74	6.0'	100 W15	3. 3.0'-4.5'
573.74	6.0'	100 W16	4. 4.5'-6.0'
573.74	6.0'	100 W17	5. 7.0'-8.5'
573.74	6.0'	100 W18	6. 8.5'-10.0'
573.74	6.0'	100 W19	7. 11.0'-12.5'
573.74	6.0'	100 W20	8. 12.5'-14.0'
573.74	6.0'	100 W21	9. 15.0'-16.5'
573.74	6.0'	100 W22	10. 16.5'-18.0'
573.74	6.0'	100 W23	11. 19.0'-20.0'
573.74	6.0'	100 W24	12. 20.0'-21.0'
573.74	6.0'	100 W25	13. 21.0'-22.0'
573.74	6.0'	100 W26	14. 23.0'-24.0'
573.74	6.0'	100 W27	15. 24.0'-25.0'
573.74	6.0'	100 W28	16. 25.0'-26.0'
573.74	6.0'	100 W29	17. 27.0'-28.0'
573.74	6.0'	100 W30	Moist at 18.0'-22.5'
573.74	6.0'	100 W31	Wet at 22.5'-30.6'
573.74	6.0'	100 W32	Set Tub at 28.0' and
573.74	6.0'	100 W33	Cleaned Hole to 30.0'
573.74	6.0'	100 W34	3" Shelby Tube Sample
573.74	6.0'	100 W35	30.0'-31.0'
573.74	6.0'	100 W36	(Continued)
573.74	6.0'	100 W37	Began Coring w/4"
573.74	6.0'	100 W38	bbt. at 31.0'
573.74	6.0'	100 W39	CARTON SAMPLES
573.74	6.0'	100 W40	1. 33.6'-34.5'
573.74	6.0'	100 W41	2. 36.7'-37.7'
573.74	6.0'	100 W42	3. 40.9'-41.8'
573.74	6.0'	100 W43	4. 45.6'-46.5'
573.74	6.0'	100 W44	5. 49.1'-49.7'
573.74	6.0'	100 W45	6. 50.7'-51.5'
573.74	6.0'	100 W46	7. 57.3'-57.8'
573.74	6.0'	100 W47	8. 61.2'-61.7'
573.74	6.0'	100 W48	9. 67.8'-68.7'
573.74	6.0'	100 W49	10. 70.0'-70.9'
573.74	6.0'	100 W50	11. 77.0'-77.9'
573.74	6.0'	100 W51	12. 83.6'-84.5'
573.74	6.0'	100 W52	13. 85.0'-85.9'
573.74	6.0'	100 W53	14. 90.0'-90.9'
573.74	6.0'	100 W54	15. 93.4'-94.3'
573.74	6.0'	100 W55	16. 98.0'-98.9'
573.74	6.0'	100 W56	BOXES
573.74	6.0'	100 W57	1. 31.0'-36.7'
573.74	6.0'	100 W58	2. 36.7'-43.5'
573.74	6.0'	100 W59	3. 43.5'-49.1'
573.74	6.0'	100 W60	4. 49.1'-56.6'
573.74	6.0'	100 W61	5. 56.6'-64.4'
573.74	6.0'	100 W62	6. 64.4'-71.3'
573.74	6.0'	100 W63	7. 71.3'-77.9'
573.74	6.0'	100 W64	8. 77.9'-82.8'
573.74	6.0'	100 W65	9. 82.8'-90.9'
573.74	6.0'	100 W66	10. 90.9'-96.3'
573.74	6.0'	100 W67	11. 96.3'-100.0'

Note No. 354C-21A

Division	Installation	Sheet	
Southwestern	Fort Worth	0-3 SHEETS	
No. 1	W SITE AND TYPE OF BIT 3" Shelby & 4" Core		
12,824 Y: 613,500	11. ELEVATION ELEVATION (IN FEET) (AS BUILT)		
	MSL		
	12. SAMPLES TAKEN & DESIGNATION OF BIT		
	DAMCO Model 1250		
	13. TOTAL NO. OF CORE, (ESTIMATED) UNDISTURBED		
	14. TOTAL NUMBER CORE BOXES 11		
	15. ELEVATION GROUND WATER See Note 2		
	16. DATE MOLE STARTED 12-6-72 COMPLETED 12-13-72		
	17. ELEVATION TOP OF MOLE 579.74		
	18. TOTAL CORE RECOVERY FOR BORING 93.2		
	19. SIGNATURE OF INSPECTOR		
	See Note 1 under "Remarks"		
CLASSIFICATION OF MATERIALS (Descriptive)	% CORE RECOVERY (EST.)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of overburden, etc., if significant)
Brown Clay	100	W1	3" Shelby Tube
2.0'	100	W2	Samples 0.0'-28.0'
Reddish Brown Sandy Clay	100	W3	JAR SAMPLES
6.0'	100	W4	1. 2.0'-3.0'
	100	W5	2. 6.0'-7.0'
	100	W6	3. 10.0'-11.0'
	100	W7	4. 14.0'-15.0'
	100	W8	5. 18.0'-19.0'
	100	W9	6. 22.0'-23.0'
	100	W10	7. 26.0'-27.0'
	100	W11	8. 30.0'-31.0'
	100	W12	WRAP SAMPLES
	100	W13	1. 0.0'-1.0'
	100	W14	2. 1.0'-2.0'
	100	W15	3. 3.0'-4.5'
	100	W16	4. 4.5'-6.0'
	100	W17	5. 7.0'-8.5'
	100	W18	6. 8.5'-10.0'
	100	W19	7. 11.0'-12.5'
	100	W20	8. 12.5'-14.0'
	100	W21	9. 15.0'-16.5'
	100	W22	10. 16.5'-18.0'
	100	W23	11. 19.0'-20.0'
	100	W24	12. 20.0'-21.0'
	100	W25	13. 21.0'-22.0'
	100	W26	14. 23.0'-24.0'
	100	W27	15. 24.0'-25.0'
	100	W28	16. 25.0'-26.0'
	100	W29	17. 27.0'-28.0'
	100	W30	Moist at 18.0'-22.5'
	100	W31	Wet at 22.5'-30.6'
	100	W32	Set Tub at 28.0' and
	100	W33	Cleaned Hole to 30.0'
	100	W34	3" Shelby Tube Sample
	100	W35	30.0'-31.0'
	100	W36	(Continued)
	100	W37	Began Coring w/4"
	100	W38	bbl. at 31.0'.
	100	W39	CARTON SAMPLES
	100	W40	1. 33.6'-34.5'
	100	W41	2. 36.7'-37.7'
	100	W42	3. 40.9'-41.8'
	100	W43	4. 45.6'-46.5'
	100	W44	5. 49.1'-49.7'
	100	W45	6. 50.7'-51.5'
	100	W46	7. 57.3'-57.8'
	100	W47	8. 61.2'-61.7'
	100	W48	9. 67.8'-68.7'
	100	W49	10. 70.0'-70.9'
	100	W50	11. 77.0'-77.9'
	100	W51	12. 83.6'-84.5'
	100	W52	13. 85.0'-85.9'
	100	W53	14. 90.0'-90.9'
	100	W54	15. 93.4'-94.3'
	100	W55	16. 98.0'-98.9'
	100	W56	BOXES
	100	W57	1. 31.0'-36.7'
	100	W58	2. 36.7'-43.5'
	100	W59	3. 43.5'-49.1'
	100	W60	4. 49.1'-56.6'
	100	W61	5. 56.6'-64.4'
	100	W62	6. 64.4'-71.3'
	100	W63	7. 71.3'-77.9'
	100	W64	8. 77.9'-82.8'
	100	W65	9. 82.8'-90.9'
	100	W66	10. 90.9'-96.3'
	100	W67	11. 96.3'-100.0'
	100	W68	
	100	W69	
	100	W70	
	100	W71	
	100	W72	
	100	W73	
	100	W74	
	100	W75	
	100	W76	
	100	W77	
	100	W78	
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	100	W85	
	100	W86	
	100	W87	
	100	W88	
	100	W89	
	100	W90	
	100	W91	
	100	W92	
	100	W93	
	100	W94	
	100	W95	
	100	W96	
	100	W97	
	100	W98	
	100	W99	
	100	W100	

ELEVATION	DEPTH	LOGGING	CLASSIFICATION OF MATERIALS (Descriptive)	% CORE RECOVERY (EST.)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of overburden, etc., if significant)
483.44	94			93.0	R-14	Box 10
	96			92.5		
	98			97.0		
479.74	100		96.3'-100.0' LIMESTONE, Gray, Hard, Unweathered	R-15	Box 11	
			Total Depth = 100.0'	100.0		

Note 1:
Soils Logged By:
A. J. Simpson,
Trinity Engineering
Testing Corporation;
Primary Logged By:
Marr and Marple,
Corps of Engineers,
Fort Worth District

Note 2:
Installed 2" Plastic
Pipe from 581.34
to _____ for ground
water observations.

RECORD DRAWING-WORK AS BUILT

SYN	DO	NO	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY:	RAY ROBERTS LAKE				
DRAWN BY:	ELM FORK, TRINITY RIVER, TEXAS				
REVIEWED BY:	EMBANKMENT, SPILLWAY AND OUTLET WORKS				
LOGS OF BORINGS 6A4C-20, 6A4C-21, AND 3S4C-21A					
SUBMITTED BY:	INVITATION NO. DACW63-82-B-0025 DATE: MAR, 1982				
ENGINEER:	CONTRACT NO. DACW63-92-C-0083				
DRAWING NUMBER					SEQUENCE NO. 16

TO ACCOMPANY FOUNDATION REPORT

Hole No. **BA6C-22**

DRILLING LOG		Division	Installation	Sheet
		Southwestern	Port North	1 of 2
1. PROJECT: Aubrey Dam Site		10. HOLE NO. AND TYPE OF BIT: 6" carbide, 6" diamond		
2. LOCATION (Continuation of Form): Intake structure		11. DATE FOR ELEVATION INFORMATION: 17 May 72		
3. DRILLING AGENCY: Corps of Engineers		12. MANUFACTURER'S DESIGNATION OF DRILL: Pilling 1500		
4. HOLE NO. (As shown on drawing sheet and file number): BA6C-22		13. TOTAL NO. OF CORES: 0		
5. NAME OF DRILLER: Schoonover		14. ELEVATION GROUND WATER: 593.5		
6. DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. DATE HOLE: 17 May 72		
7. THICKNESS OF OVERBURDEN: 8.0		16. ELEVATION TOP OF HOLE: 593.5		
8. DEPTH DRILLED INTO ROCK: 40.5		17. TOTAL CORE RECOVERY FOR BORING: 96.5		
9. TOTAL DEPTH OF HOLE: 48.5		18. SIGNATURE OF INSPECTOR: <i>Raymond E.</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water flow, depth of weathering, etc., if significant)
0.0'	2.6'		SAND, sil. clayey, fine to med. grained, sil. moist brown.	1. After completion, hole was bailed to 45.0' and 2 1/2" I.D. perforated plastic pipe was placed in hole.
2.6'	8.0'		CLAY, sandy, moist, medium red to tan.	2. Jars:
8.0'	10.0'		CLAY-SHALE, calc., moist, stiff, tan.	A. 0.0 to 2.6 B. 2.6 to 6.5 C. 6.5 to 8.0 D. 8.0 to 9.0 E. 9.0 to 10.0
10.0'	10.0'		-- Start 6" core @ 10.0' --	3. Cartons:
10.0'	19.0'		CLAY-SHALE, calc., highly jointed, m. hard, numerous rootlets, open, highly-stained joint from 14.1 to 15.3, tan and gray.	1. 10.0 to 11.0 2. 17.2 to 18.2 3. 22.6 to 23.6 4. 27.7 to 28.7 5. 38.4 to 39.4 6. 45.2 to 46.2
19.0'	19.0'		-- Transitional weathering contact @ 19.0' --	4. Weathered to 19.0'
19.0'	36.9'		SHALE, calc., jointed and stained to 22.6', thick bedded, fossilif., gray	5. Base of jointing at 22.6'
36.9'	36.9'		-- Transitional contact @ 36.9' --	
36.9'	43.6'		36.9' to 42.1' - m. hard fossilif., shaley, gray	
42.1'	43.6'		42.1' to 43.6' - sandy, fossilif., shaley, HARD gray.	
43.6'	47.2'		SHALE, calc., m. hard, scattered Limestone concretions, gray.	
47.2'	48.5'		43.6' to 43.8' SILTSTONE, m. hard, tan.	
48.5'	48.5'		NO RECOVERY	

Hole No. **BA6C-23**

DRILLING LOG		Division	Installation	Sheet
		Southwestern	Port North District	1 of 2
1. PROJECT: Aubrey Dam		10. HOLE NO. AND TYPE OF BIT: 6" carbide, 6" diamond		
2. LOCATION (Continuation of Form): Sta 78+00, West Abutment C L		11. DATE FOR ELEVATION INFORMATION: 17 May 72		
3. DRILLING AGENCY: USACE-C		12. MANUFACTURER'S DESIGNATION OF DRILL: Pilling 1500		
4. HOLE NO. (As shown on drawing sheet and file number): BA6C-23		13. TOTAL NO. OF CORES: 0		
5. NAME OF DRILLER: Jay Creman		14. ELEVATION GROUND WATER: 593.5		
6. DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		15. DATE HOLE: 17 May 72		
7. THICKNESS OF OVERBURDEN: 19.0'		16. ELEVATION TOP OF HOLE: 593.5		
8. DEPTH DRILLED INTO ROCK: 51.0'		17. TOTAL CORE RECOVERY FOR BORING: 96.5		
9. TOTAL DEPTH OF HOLE: 70.6		18. SIGNATURE OF INSPECTOR: <i>Raymond E.</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, water flow, depth of weathering, etc., if significant)
0.0'	17.6'		CLAY-lean, sandy-fine; silty; dry.	
17.6'	17.6'		@ 0.6' - becomes moist.	
17.6'	17.6'		@ 1.7' - becomes stiff, well consolidated, fat	
17.6'	17.6'		@ 5.3' - becomes gravelly limestone, hard, max size 1"; lean, with color change.	
17.6'	17.6'		Yellowish brown.	
17.6'	17.6'		@ 13.6' - becomes very lean with more sand fines	
17.6'	17.6'		12.6' to 17.6'	
17.6'	17.6'		17.6' - hard, angular limestone size 1-1/2"; sand coarse; silty; moist; brown, gray, & yellowish-brown	
17.6'	17.6'		--Start 4" core at 20.0'--	
20.0'	20.0'		20.0' to 29.2'	
20.0'	20.0'		SHALE, soft - moderately hard, moist, interbedded with scattered, thin sandstone seams.	
20.0'	20.0'		20.0' - 2500' - weathered, oxide stains, yellow-brown & gray.	
20.0'	20.0'		26.6' - 24.8' - SANDSTONE, fine, argillaceous, moderately cemented.	
20.0'	20.0'		25.0 - 33.3' - Predom dark gray with oxide staining limited to bedding planes.	
20.0'	20.0'		28.2 - 29.6' - Fossiliferous Sandstone	
20.0'	20.0'		29.6 - 31.2' - Sandstone	
20.0'	20.0'		31.2 - 33.3' - Sandstone	

western		Installation Fort North District		Hole No.		Sheet 1 of 2 sheets	
		IN SIZE AND TYPE OF BIT 4" CORE BARREL					
		11. DATE FOR ELEVATION INSTRUMENT - M.S.D.					
C.L.		MSI					
		12. MINUTE/SECONDS & DEGREES OF DRILL Falling 350					
4C-25		13. TOTAL NO. OF OVER- BURDEN SAMPLE TAKEN	OCTOBER 7	UNDISTURBED	8		
		14. TOTAL NUMBER CORE BORES	B				
		15. ELEVATION GROUND WATER					
DES. FROM VERT.		16. DATE HOLE STARTED	25 May 72	COMPLETED	26 May 72		
		17. ELEVATION TOP OF HOLE	600.66				
		18. TOTAL CORE RECOVERY FOR BORING					
		19. SIGNATURE OF INSPECTOR	Raymond T. Hagen				
DESCRIPTION OF MATERIALS (Designated)		SCORE RECOVERED EST	NO. OF SAMPLE NO.	REMARKS (Drilling method used, depth of penetration, etc., if significant)			
17.6'			A	<u>JAR SAMPLES</u>			
lean, sandy-fine; dry.				A = 0.0' to 1.0' B = 3.0' to 4.0' C = 6.0' to 7.0' D = 9.0' to 10.0' E = 12.0' to 13.0' F = 15.0' to 16.0' G = 18.0' to 19.5'			
becomes moist. - becomes stiff, consolidated, fat - becomes gravelly tone, hard, max 1"; lean, with change. vish brown.			B				
- becomes very fine more sand fines			C	<u>CARTON SAMPLES</u>			
			D	1 = 22.3' to 23.3' 2 = 29.4' to 30.4' 3 = 34.0' to 35.0' 4 = 36.4' to 37.4 5 = 46.9' to 47.9 6 = 49.0' to 49.8 7 = 52.0' to 53.0' 8 = 58.8' to 59.8'			
			E				
			F	<u>PENTOMETER BLOWS</u>			
18.3'			G	13.6' to 14.1' - 43 14.1' to 15.1' - 72			
hard, rounded & limestone; max 7/8"; sandy-fine to silty; mottled- gray, & yellowish-		L-0.5		Sec casing to 20.0' and started coring at that depth.			
" core at 20.0'-"		27.9					
69.2'		L-0.2	1				
silt - moderately stained, interbedded sands, thin seams.		24.0					
100'- red, oxide stains, brown & gray.	Box 1 Box 2	L-0					
4.8' - SANDSTONE, argillaceous, fely cemented.		30.4	2				
1' - Predom ay with taining limited ing Planes.	Box 1 Box 3	21.5					
6' - Fossiliferous		35.4	3				
8' - Sandstone		36.7	4				
3.2' - Sandstone		L-0.6					
		39.8					

[illegible]

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.
MAR 71

PROJECT
AUBREY DEAN

7-16C-25

	SYM	00 NO
DESIGNED BY		

CHECKED BY		

REVIEWED BY		

SUBMITTED BY		

ENG. NO.		

ELEVATION +	DEPTH +	LEGEND +	CLASSIFICATION OF MATERIALS (Description)	LOG NO. +	LOG OR SAMPLE NO. +	REMARKS (Depth, time, water level, depth of penetration, etc., as applicable)
	40		33.3'-69.2' Unweathered, dark gray, moderately hard.	41.5		
				L-1.0		
			36.5'-36.8' - SANDSTONE, moderately hard, mod- erately cemented, very fine, thinly bedded, light gray-tan.	46.5		
			37.3-37.4' - Fossiliferous	5		
			46.7-47.4' - SANDSTONE	G-0.3		
			47.9-48.4' - "	6		
			50.4-50.6' - "	50.5		
			53.3-54.2' - "	L-0.9		
			54.6-54.9' - "	7		
			55.3-55.4' - "			
			56.4-56.5' - "			
			57.8-58.1' - "			
			58.2-58.7' - "			
			61.4-61.6' - "			
			62.9-64.4' - Fossiliferous	55.5		
			64.4-64.9' - Fossiliferous	60.5		
			66.6-66.9' - SANDSTONE	L-0.7		
			67.0-67.6' - "	8		
			67.6-68.0' - "			
			68.5-68.7' - "			
	60			62.5		
				L-0.2		
				65.5		
				G-0.8		
	70		70.0			
			70.0			

Unable to obtain
Carbon samples
for last 10' of hole
due to fragmentation
of core

7.0 70.0'

DWG FORM 1036 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT Aubrey Dam SCALE NO 8A4C-25

RECORD DRAWING-WORK AS BUILT

DESIGNED BY:	RAY ROBERTS LAKE		
DRAWN BY:	ELM FORK, TRINITY RIVER, TEXAS		
REVIEWED BY:	EMBANKMENT, SPILLWAY AND		
SUBMITTED BY:	OUTLET WORKS		
ENGINEER:	LOGS OF BORINGS		
	8A6C-22 AND 8A4C-25		
	INVITATION NO. DACW63-82-B-0025	DATE	MAR, 1982
	CONTRACT NO. DACW63-82-C-0083	SHEET NO.	17
	DRAWING NUMBER	OF	

TO ACCOMPANY FOUNDATION REPORT

CONTRACT NO. DACW63-82-C-0083

Hole No. 8A-4C-26

DRILLING LOG		Southwestern		Fort Worth District		SHEET 1 of 2 SHEETS	
PROJECT: Audrey Dan		LOCATION: Sta 29+50, West Abundant C.L.		HOLE NO. (As shown on drawing and this number)		8A-4C-26	
DRILLING AGENCY: USACE-C		DATE OF DRILLING: 24 May 72		COMPLETED: 25 May 72			
NAME OF DRILLER: Jay Cremon		DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		ELEVATION GROUND WATER: 598.91			
THICKNESS OF OVERBURDEN: 30.5'		DEPTH DRILLED INTO ROCK: 24.5'		TOTAL CORE RECOVERY FOR BORING: 55.0'			
TOTAL DEPTH OF HOLE: 55.0'		SIGNATURE OF INSPECTOR: Raymond T. Hagen					
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, hour or time, depth of penetration, etc., if significant)	TESTS	REMARKS	TESTS
			0.0' to 18.8'			JAR SAMPLES	
			CLAY-dry, lean, loose, sandy-fine; dark grayish brown.			A - 0.0' to 1.0'	
			@ 0.8 becomes fat, stiff, wet			B - 3.0' to 4.0'	
			@ 2.3' color changes to light grayish-brown			C - 6.0' to 7.0'	
			@ 8.2' becomes very stiff, much fatter, well consolidated, with color change to dark grayish-brown			D - 9.0' to 10.0'	
			@ 11.2' becomes lean, very sandy-fine, with color change to yellowish brown.			E - 12.0' to 13.0'	
						F - 15.0' to 16.0'	
						G - 18.0' to 19.0'	
						H - 21.0' to 22.0'	
						I - 24.0' to 25.0'	
						J - 27.0' to 28.6'	
						CARTON SAMPLES	
						1 - 33.4' to 34.3'	
						2 - 39.0' to 40.0'	
						3 - 43.5' to 44.6'	
						4 - 51.0' to 52.0'	
						Set casing to 30.5'.	
						Started coring at 31.5' (upper gravel deposit chewed up core - no recovery).	
			18.8' to 26.6'			PENELOMETER TEST	
			SAND-fine, clayey, lean, wet, silty; yellowish-brown			26.9 to 27.4 - 50 Blows	
						27.4 to 28.4 - 97 "	
						Bailed Hole to 51.3'.	
						Direct Measure of Depth 53.5'	
			26.9' to 29.0'				
			GRAVEL-hard, well rounded, max size 1-1/2"; clayey, lean, sandy-fine; yellowish brown				
			@ 27.0 - becomes banded with Gravel & Sand bedding. Sand-fine to coarse; micaceous				
			--Start 4" Core at 31.5'--				
			31.5' to 34.4'				
			SHALE, moderately hard, moist, dark gray, fissile, unweathered (except for oxide staining to 33.1), non-jointed.				
			31.5-31.6 SANDSTONE, argillaceous, moderately hard, moderately cemented, thin bedded, oxide stained.				
			31.8-32.6 SANDSTONE, argillaceous, moderately hard, moderately cemented, thin bedded, tan-lt gray sandstone seams.				
			32.2-44.1 Interbedded with thin, very fine, thin bedded, tan-lt gray sandstone seams.				
			36.8-37.0 SANDSTONE				
			39.3-40.0 SANDSTONE				
			39.8-40.0 Fossiliferous				
			41.8-42.4 SANDSTONE				
			42.8-43.8 "				
			44.0-44.1 "				
			46.9-49.8 Slightly fossiliferous throughout.				
			46.9-47.3 Sandy with fossil detritus				
			49.4-49.8 Very fossiliferous, very well cemented, claystone - nodules from 49.4 - 49.6.				
			T.D. 55.0'				

Hole No. 8A-4C-27

DRILLING LOG		Southwestern		Fort Worth District		SHEET 1 of 2 SHEETS	
PROJECT: Audrey Dan		LOCATION: Sta 29+50, West Abundant C.L.		HOLE NO. (As shown on drawing and this number)		8A-4C-27	
DRILLING AGENCY: USACE-C		DATE OF DRILLING: 24 May 72		COMPLETED: 25 May 72			
NAME OF DRILLER: Jay Cremon		DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		ELEVATION GROUND WATER: 598.91			
THICKNESS OF OVERBURDEN: 28.0'		DEPTH DRILLED INTO ROCK: 16.9'		TOTAL CORE RECOVERY FOR BORING: 40.0'			
TOTAL DEPTH OF HOLE: 40.0'		SIGNATURE OF INSPECTOR: Raymond T. Hagen					
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS (Drilling time, hour or time, depth of penetration, etc., if significant)	TESTS	REMARKS	TESTS
			0.0' to 20.6' - CLAY-fat, moist, sandy-fine to coarse; very dark gray.				
			@ 2.1' - becomes soft, wet				
			@ 5.2' - becomes stiff with more coarse sand (line nodules) with color change to grayish-brown				
			@ 11.1' - Color change to mottled-yellowish brown, gray, and red.				
			@ 15.0' - loses coarse sand and becomes lean.				
			@ 17.6' - becomes gravelly, well rounded, hard, max size 1/2"				
			20.6' to 23.7' - GRAVEL-hard, rounded, max size 2"; clayey, very lean sandy-fine to coarse; yellowish brown.				
			Started 4" core at 25.0'.				
			26.5' to 26.7' SANDSTONE, fine-grained, soft, tan, friable, stained.				
			26.7' to 32.7' SHALE, sandy, moderately hard, gray to brown, slightly stained, moderately hard sandstone bed at 29.3' to 29.4'.				
			32.7' to 40.0' SHALE, moderately hard, dark gray, fresh.				
			TOTAL DEPTH - 40.0'.				

Hole No. 6DC-28

DRILLING LOG	Division	Southwestern	Installation	Fort Worth	Sheet 1 of 2
SUBJECT		Subrey Dam Site No. 1			
LOCATION (Continued or from previous sheet)		Lot Shown T: 2, 119, 120 V: 415, 255			
DRAWING AGENCY		Boyd Lane Trinity Engineering Testing Corporation			
DATE NO. (Last shown on drawing sheet)		6DC-28			
DATE OF DRILLER		Boyd Lane Trinity Engineering Testing Corporation			
SECTION OF HOLE		Vertical			
DIAMETER		6.0"			
THICKNESS OF OVERBURDEN		36.0'			
DEPTH DRILLED INTO ROCK		24.0'			
TOTAL DEPTH OF HOLE		60.0'			
INSTALLATION		Fort Worth			
SIZE AND TYPE OF BIT		6" Den, 6" Core			
DATE FOR ELEVATION DATA		MSL			
MANUFACTURER'S DESIGNATION OF DRILL		Falling Model 44			
TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		18			
TOTAL NUMBER CORE BOXES		5			
ELEVATION GROUND WATER		See Note 2			
DATE MOLE		11-14-72			
ELEVATION TOP OF HOLE		558.84			
TOTAL CORE RECOVERY FOR BORING		100.0			
SIGNATURE OF INSPECTOR		See Note 1 under "Remarks"			

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Descriptive)	DEPTH (Feet)	BOX NO.	REMARKS
6.84		Dark Brown Clay	2.0'	J1	Used 8" Auger from 0.0'-3.0'
		Tan Clay		D1	Used 6" d.b. from 3.0'-38.0'
				D2	Jar sample taken from shoe of each Denison sample.
10.34		8.5'		D3	
		Tan Sandy Clay		D4	JAR SAMPLES
				D5	1. 0.0'-3.0'
				D6	2. 5.0'
				D7	3. 7.0'
				D8	4. 9.0'
				D9	5. 11.0'
				D10	6. 13.0'
				D11	7. 15.0'
				D12	8. 17.0'
				D13	9. 19.0'
				D14	10. 21.0'
				D15	11. 23.0'
				D16	12. 25.0'
				D17	13. 27.0'
				D18	14. 29.0'
				D19	15. 31.0'
				D20	16. 33.0'
				D21	17. 35.0'
				D22	18. 38.0'
				D23	
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				D100	

RECORD DRAWING-WORK AS BUILT

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND
OUTLET WORKS
LOGS OF BORINGS
8A4C-26, 8A4C-27, AND 6DC-28

INVITATION NO. DACW63-82-B-0025 DATE: MAR, 1982
CONTRACT NO. DACW63-82-C-0085
DRAWING NUMBER SHEET NO. 18

TO ACCOMPANY FOUNDATION REPORT

836-A (MODIFIED)	PROJECT Aubrey Dam Site No. 1	HOME NO. 6DC-30
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BNG FORM 1834-A 201 07	10/10/10 07-10/10/10 10/10/10	PROJECT Aubrey Dam Site No. 1	PAGE NO. 6DC-3
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TO ACCO

DRILLING LOG		Southwestern		Fort Worth		Sheet 1 of 2	
Aubrey Dam Site No. 1		K-2, 141, 403, Y-415, 378- Sta. 132+00		MSI		Fallline Model 44	
Corps of Engineers		6DC-31		19		19	
Boyd Lane		Trinity Engineering Testing Corporation		See Note 2		See Note 2	
Direction of Hole		See Note 1		12-18-72		12-29-72	
Thickness of Overburden		19.0'		555.38		100.0	
Depth Drilled into Rock		51.0'		See Note 1 under "Remarks"			
Total Depth of Hole		90.0'					
ELEVATION	DEPTH	LEGEND	EXPLANATION OF MATERIALS (Description)	DEPTH OF SAMPLE	TEST RESULTS	REMARKS	
550.38	2		Brown Clay	0	J1	Used 8" Auger from 0.0'-3.0'	
	4			50	D1	Used 6" Denison bbl. 3.0'-10.0'	
546.38	6		Brown Sandy Clay	100	D2	Jar sample taken from shoe of each Denison sample.	
	8			100	D3		
540.38	10		Brown Silty Clay w/Sand Lenses	100	D4	JAR SAMPLES	
	12			80	D5	1. 0.0'-3.0'	
	14			100	D6	2. 5.0'	
	16			90	D7	3. 7.0'	
	18			100	D8	4. 9.0'	
	20			100	D9	5. 11.0'	
532.38	22			50	D10	6. 13.0'	
	24		Tan and Gray Sandy Clay	100	D11	7. 15.0'	
530.38	26		25.0' w/Silt Lenses	100	D12	8. 17.0'	
	28			75	D13	9. 19.0'	
	30		Tan and Gray Silty Clay w/Iron Ore	90	D14	10. 21.0'	
	32			100	D15	11. 23.0'	
522.38	34			90	D16	12. 25.0'	
	36		Gray Silty Sand w/ Scattered Gravel	100	D17	13. 27.0'	
	38			0		14. 29.0'	
516.38	40		39.0'	40	D18	15. 31.0'	
	42		39.0'-45.0', SHALE	R-1		16. 33.0'	
	44		39.0'-45.0'	100%	Box 1	17. 35.0'	
510.38	46		SHALE, Mod. Hard, Dk. Gray Thin-Bedded-Massive, w/Num. Lt. Gray Sand Pockets and Lenses	45.0	R-2	18. 38.0'-40.0'	
	48		43.4' Siltsone Nods., Hard Tan	100%	Box 2	Reamed from 0.0'-38.0' w/8" bit.	
	50		45.0'-55.6'	50.0		Began coring w/6" core bbl. at 40.0'	
	52		Shale & Sandstone, Alt. Bed w/occas. Sand Lenses	R-3		Set 8" casing to 44.0'	
	54		Shale is Gray, Massive, Mod. Hard, Sandy Unweathered	100%	Box 3		
499.78	56		54.0'	54.0			
	58		Sandstone is Fine-Med. Grs Soft-Mod. Hard, Gray-Lt. Gray, Well Cemented	R-4			
	60		55.6'-64.0'	59.0	Box 4		
	62		Shale, Mod. Hard-Hard, Dk. Gray Laminated, Unweathered	R-5			
491.38	64		58.6'-59.4' Fossiliferous zone Soft-Mod. Hard, Calc.	64.0			
	66		64.0'-75.4'	R-6			
	68		Shale & Sandstone, Alt. Bed w/occas. Sand Lenses	100%	Box 5		
	70		Shale is Mod Hard-Hard, Dk. Gray, Laminated	69.0			
	72			R-7			
	74			100%	Box 6		
479.38	76		75.4'	74.0			
	78		75.4'-90.0'	R-8			
	80		Shale, Gray-Dk. Gray, Mod. Hard-Hard, Laminated Calc.	79.0	Box 7		
	82			100%			
	84			84.0			
	86			R-10	Box 8		
	88			100%			
465.38	90		90.0'	89.0	Box 9		
			Total Depth = 90.0 Feet	100%			

SDG FORM 1834-A (MODIFIED) 6DC-31

RECORD DRAWING-WORK AS BUILT

SYM				DO	NO	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS								
DESIGNED BY:		RAY ROBERTS LAKE						
DRAWN BY:		ELM FORK, TRINITY RIVER, TEXAS						
REVIEWED BY:		EMBANKMENT, SPILLWAY AND						
		OUTLET WORKS						
		LOGS OF BORINGS						
		6DC-30 AND 6 DC-31						
SUBMITTED BY:		INVITATION NO. DACW 63-82-B 0015			DATE MAR, 1982			
ENGINEER:		CONTRACT NO. DACW 63-72-C-0083			SEQUENCE NO.			
		DRAWING NUMBER			SHEET NO.		19	

TO ACCOMPANY FOUNDATION REPORT

CONTRACT NO. DACW 63-82-B 0015

Hole No. 356DC 32

DRILLING LOG		Southwestern		Fort Worth		Hole No. 356DC 32	
PROJECT: Aubrey Dam Site No. 1		DIVISION: Southwestern <td colspan="2">INSTALLATION: Fort Worth <td colspan="2">Hole No. 356DC 32</td> </td>		INSTALLATION: Fort Worth <td colspan="2">Hole No. 356DC 32</td>		Hole No. 356DC 32	
LOCATION: 10 miles N. of Fort Worth, Texas		DATE: 12-30-72		TIME: 10:00 AM		Hole No. 356DC 32	
NOT SHOWN: Y 2141.310 Y 415.790		MSL		MSL		Hole No. 356DC 32	
DRILLING AGENCY: Corps of Engineers		FALLING MODEL: 44		FALLING MODEL: 44		Hole No. 356DC 32	
NAME OF DRILLER: Doyd Lane		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 16		TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 16		Hole No. 356DC 32	
TRINITY ENGINEERING TESTING CORPORATION		TOTAL NO. OF CORE BOSS: 3		TOTAL NO. OF CORE BOSS: 3		Hole No. 356DC 32	
DIRECTION OF HOLE: VERTICAL		ELEVATION GROUND WATER: See Note 2		ELEVATION GROUND WATER: See Note 2		Hole No. 356DC 32	
THICKNESS OF OVERBURDEN: 41.5		DATE MOLE: 12-30-72		DATE MOLE: 1-4-73		Hole No. 356DC 32	
DEPTH DRILLED INTO ROCK: 18.5		ELEVATION TOP OF HOLE: 557.05		ELEVATION TOP OF HOLE: 557.05		Hole No. 356DC 32	
TOTAL DEPTH OF HOLE: 60.0		TOTAL CORE RECOVERY FOR BORING: 100.0		TOTAL CORE RECOVERY FOR BORING: 100.0		Hole No. 356DC 32	
SIGNATURE OF INSPECTOR: See Note 1 under "Remarks"		SIGNATURE OF INSPECTOR: See Note 1 under "Remarks"		SIGNATURE OF INSPECTOR: See Note 1 under "Remarks"		Hole No. 356DC 32	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	NO. OF CORE RECON. DAY	NO. OF SAMPLES	REMARKS	REMARKS
555.05	2		Brown Clay	100	W1	3" Shelby Tube	
				100	W2	Samples	
				100	W3	0.0'-20.0'	
			Brown Sandy Clay	100	W4	Denison bbl. Samples	
				100	W5	20.0'-44.0'	
				100	W6	Jar Samples Nos. 6	
				100	W7	- 16 were taken	
				100	W8	from the shoe of	
				100	W9	the Denison sample.	
			Brown Silty Sand	100	W10	JAR SAMPLES	
				100	W11	1. 2.0'-3.0'	
				100	W12	2. 6.0'-7.0'	
				100	W13	3. 10.0'-11.0'	
				100	W14	4. 14.0'-15.0'	
				100	W15	5. 18.0'-19.0'	
				100	W16	6. 22.0'	
				100	W17	7. 24.0'	
				100	W18	8. 26.0'	
				100	W19	9. 28.0'	
				100	W20	10. 30.0'	
				100	W21	11. 32.0'	
				100	W22	12. 34.0'	
				100	W23	13. 38.0'	
				100	W24	14. 40.0'	
				100	W25	15. 42.0'	
				100	W26	16. 44.0'	
				100	W27	Reamed hole to 42.0'	
				100	W28	w/8" bit.	
				100	W29	Set 8" casing to 42.0'	
				100	W30	Used 6" core bbl.	
				100	W31	from 44.0'-60.0'	
				100	W32		
				100	W33		
				100	W34		
				100	W35		
				100	W36		
				100	W37		
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				100	W189		
				100	W190		
				100	W191		
				100	W192		
				100	W193		
				100	W194		
				100	W195		
				100	W196		
				100	W197		

DHO FORM 1834-A Nov 67 (MOBILIZED)	GPO: 1967 O-376-070-000	SUBJECT Aubrey Dam Site No. 2	HQT NO 356D-34
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[illegible]

356D-34
 SHEET
 OF 2 SHEETS
 6" d.b.
 UNDISTURBED
 1 20
 2
 2-5-73
 0-31.0', 31.0'-36.0'
 0'-36.0' Water depth and drilled ring
 SAMPLES
 1.0'
 2.0'
 4.5'
 6.0'
 8.5'
 10.0'
 12.5'
 14.0'
 16.5'
 18.0'
 20.5'
 22.0'
 24.5'
 26.0'
 28.5'
 30.0'
 SAMPLES
 33.0'
 35.0'
 37.0'
 39.0'
 (PLES
 3.0'
 7.0'
 11.0'
 15.0'
 19.0'
 23.0'
 27.0'
 31.0'
 0'
 0'
 0'
 d by
 von,
 glaser
 rporation.
 'plastic
 61.0 to
 ground-
 rations.
 356D-34

DRILLING		INSTALLATION			
Southwestern		Fort Worth			
PROJECT Aubrey Dam Site No. 1		HOLE NO. 356D-35			
LOCATION (Elevations or Stationing) Sta. 111+00/ X=2,139,594; Y=614,164; 619'R		HOLE TYPE AND SIZE 3" Shelby 6" d.b.			
DRILLING AGENCY Corps of Engineers		MANUFACTURER'S DESIGNATION OF DRILL MSL			
HOLE NO. (See Note 1 under "Remarks") 356D-35		TOTAL NO. OF CORES 12			
NAME OF DRILLER Boyd Lane		TOTAL NUMBER CORE BOXES 0			
TRINITY ENGINEERING TESTING CORPORATION		ELEVATION GROUND WATER See Note 2			
DIRECTION OF HOLE VERTICAL		DATE HOLE 1-31-72			
THICKNESS OF OVERBURDEN 45.0'		ELEVATION TOP OF HOLE 559.58			
DEPTH DRILLED INTO ROCK 2.0'		TOTAL CORE RECOVERY FOR BORING 83.3			
TOTAL DEPTH OF HOLE 47.0'		SIGNATURE OF INSPECTOR See Note 1 under "Remarks"			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Designated)	SOIL OR SAMPLE NO.	REMARKS (Drilling time, water level, depth of weathering, etc., if significant)
546.58	2		Dark Brown Clay	W1	Boring advanced with 3" Shelby tube from 0.0'-40.5'. Cleaned out 40.5'-41.0'.
	4			W2	
	6			W3	
	8			W4	
	10			W5	
	12			W6	
	14			W7	
	16			W8	
	18			W9	
	20			W10	
	22			W11	
	24			W12	
	26			W13	
	28			W14	
	30			W15	
	32			W16	
	34			W17	
	36			W18	
	38			W19	
	40			W20	
	42			W21	
539.58	4		Brown Clay w/Silt	J1	Used 6" Denison barrel 41.0'-47.0'. Set 8" casing to 45.0' depth.
	6			J2	
	8			J3	
	10			J4	
	12			J5	
	14			J6	
	16			J7	
	18			J8	
	20			J9	
	22			J10	
	24			J11	
	26			J12	
	28			J13	
	30			J14	
	32			J15	
	34			J16	
	36			J17	
	38			J18	
	40			J19	
	42			J20	
	44			J21	
524.58	4		Brown Silty Clay	D1	1. 41.0'-43.0'
	6			D2	2. 43.0'-45.0'
	8			D3	3. 45.0'-47.0'
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				
	26				
	28				
	30				
	32				
	34				
	36				
	38				
	40				
518.08	4		Tan and Brown Sandy Clay		
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				
	26				
	28				
	30				
	32				
	34				
	36				
	38				
	40				
515.08	4		Gray Sandy Clay		
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				
	26				
	28				
	30				
	32				
	34				
	36				
	38				
	40				
514.58	4		Gray Sandy Clay		
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				
	26				
	28				
	30				
	32				
	34				
	36				
	38				
	40				
512.58	4		Gray Shale		
	6				
	8				
	10				
	12				
	14				
	16				
	18				
	20				
	22				
	24				
	26				
	28				
	30				
	32				
	34				
	36				
	38				
	40				
	42				
	44				
	46				
	48				
			Total Depth = 47.0 Feet		

Note 1:
 Soils logged by:
 A. J. Simpson,
 Trinity Engineering
 Testing Corporation.

Note 2:
 4" plastic pipe in-
 stalled from
 for groundwater
 observations.

RECORD DRAWING-WORK AS BUILT

SYM	NO	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY	RAY ROBERTS LAKE			
DRAWN BY	ELM FORK, TRINITY RIVER, TEXAS			
REVIEWED BY	EMBANKMENT, SPILLWAY AND			
SUBMITTED BY	OUTLET WORKS			
ENGINEER	LOGS OF BORINGS			
	3S6DC-32, 6DC-33, 3S6D-34, AND 3S6D-35			
	INVITATION NO. DACW63-82 B-0025		DATE MAR, 1982	
	CONTRACT NO. DACW63-92 C 0043		SEQUENCE NO. 20	
	DRAWING NUMBER		SHEET NO. OF 20	

TO ACCOMPANY FOUNDATION REPORT

Hole No. 356D-36									
DRILLING		INSTALLATION		PROJECT		SHEET		DATE	
Aubrey Dam Site No. 1		Fort Worth		Shelby, 6" Denison		1 of 2 sheets			
X=2,140,546; Y=614,471; Sta. 0+00		MSL		Falling Model 44					
Corps of Engineers		See Note 2		See Note 1 under "Remarks"					
356DC-37		Boyd Lane		Trinity Engineering Testing Corporation					
Direction of Hole		See from vert.							
Vertical		Inclined							
Thickness of Overburden		44.0'		Elevation Top of Hole		557.89			
Depth Drilled into Rock		2.0'		Total Core Recovery for Boring					
Total Depth of Hole		46.0'		Signature of Inspector					
Elevation		Depth		Legend		Classification of Materials		Remarks	
549.38		8.5'		Brown Clay		W1		Drilling	
						W2		3" Shelby; 0.0'-26.0'	
						W3		Cleaned out	
						W4		Set 26.0' of 8" casing	
						J2		6" d. b. from 26.0'-	
						W5		46.0'. Advanced casing	
						W6		to 45.0'.	
						J3		WRAP SAMPLES	
						W7		1. 0.0'-1.0'	
						W8		2. 1.0'-2.0'	
						W9		3. 3.0'-4.5'	
						W10		4. 4.5'-6.0'	
						W11		5. 7.0'-8.5'	
						W12		6. 8.5'-10.0'	
						W13		7. 11.0'-12.5'	
						W14		8. 12.5'-14.0'	
						J4		9. 15.0'-16.5'	
						J5		10. 16.5'-18.0'	
						J6		11. 19.0'-20.5'	
						J7		12. 20.5'-22.0'	
						J8		13. 23.0'-24.5'	
						J9		JAR SAMPLES	
						D1		1. 2.0'-3.0'	
						D2		2. 6.0'-7.0'	
						D3		3. 10.0'-11.0'	
						D4		4. 14.0'-15.0'	
						D5		5. 18.0'-19.0'	
						D6		6. 22.0'-23.0'	
						D7		7. 28.0'	
						D8		8. 30.0'	
						D9		9. 32.0'	
						D10		10. 34.0'	
						D11		11. 36.0'	
						D12		12. 38.0'	
						D13		13. 40.0'	
						D14		14. 42.0'	
						D15		15. 44.0'	
						D16		16. 46.0'	
						D17		DENISON SAMPLES	
						D18		1. 26.0'-28.0'	
						D19		2. 28.0'-30.0'	
						D20		3. 30.0'-32.0'	
						D21		4. 32.0'-34.0'	
						D22		5. 34.0'-36.0'	
						D23		6. 36.0'-38.0'	
						D24		7. 38.0'-40.0'	
						D25		8. 40.0'-42.0'	
						D26		9. 42.0'-44.0'	
						D27		10. 44.0'-46.0'	
						D28		Note 1:	
						D29		Soils logged by:	
						D30		A. J. Simpson,	
						D31		Trinity Engineering	
						D32		Testing Corporation.	
						D33		Note 2:	
						D34		Install 4" plastic pipe	
						D35		from 559.18 to 513.18	
						D36		for groundwater	
						D37		observations.	
						D38		Boring was advanced to	
						D39		26.0 feet below the	
						D40		ground surface prior	
						D41		to using drilling fluid	
						D42		and groundwater was	
						D43		encountered at the	
						D44		18.0-foot depth.	

DRILLING		Division		Southwestern		Installation		Fort Worth	
1. PROJECT		2. LOCATION		3. DATE		4. SITE AND TYPE OF PIT		5. SHEET	
Aubrey Dam Site No. 1		X=2,140,546; Y=614,471; Sta. 0+00		6. DATE		7. MSL		8. FALLING MODEL 44	
9. NAME OF DRILLER		10. BOYD LANE		11. TOTAL NO. OF OVER-BORE SAMPLES TAKEN		12. TOTAL NUMBER CORE BOXES		13. ELEVATION GROUND SURFACE	
Trinity Engineering Testing Corporation		356DC-37		14. DATE HOLE		15. ELEVATION TOP OF HOLE		16. TOTAL CORE RECOVERY FOR BORING	
17. DIRECTION OF HOLE		18. INCLINED		19. SEE FROM VERT.		20. SIGNATURE OF INSPECTOR		21. SEE NOTE 1 UNDER "REMARKS"	
22. THICKNESS OF OVERBURDEN		23. 44.0'		24. ELEVATION TOP OF HOLE		25. 556.68		26. TOTAL CORE RECOVERY FOR BORING	
27. DEPTH DRILLED INTO ROCK		28. 2.0'		29. SIGNATURE OF INSPECTOR		30. SEE NOTE 1 UNDER "REMARKS"		31. REMARK	
32. TOTAL DEPTH OF HOLE		33. 46.0'		34. SEE NOTE 1 UNDER "REMARKS"		35. REMARK		36. REMARK	
ELEVATION		DEPTH		LEGEND		CLASSIFICATION OF MATERIALS (Designated)		BOX OF SAMPLE NO.	
a		b		c		d		e	
553.68		2		Brown Clay		3.0'		W1	
		4		Tan Silty Clay		7.0'		W2	
549.68		6		Light Brown Silty Clay		11.0'		W3	
		8		Tan and Brown Silty Clay		20.0'		W4	
545.68		10		Tan Silty Sandy Clay		30.0'		W5	
		12		Tan Sand and Gravel		44.0'		W6	
536.68		14		Tan Sand and Gravel		44.0'		W7	
		16		Tan Sand and Gravel		44.0'		W8	
526.68		18		Tan Sand and Gravel		44.0'		W9	
		20		Tan Sand and Gravel		44.0'		W10	
524.68		22		Tan Sand and Gravel		44.0'		W11	
		24		Tan Sand and Gravel		44.0'		W12	
518.68		26		Tan Sand and Gravel		44.0'		W13	
		28		Tan Sand and Gravel		44.0'		W14	
512.68		30		Tan Sand and Gravel		44.0'		W15	
		32		Tan Sand and Gravel		44.0'		W16	
510.68		34		Tan Sand and Gravel		44.0'		W17	
		36		Tan Sand and Gravel		44.0'		W18	
		38		Tan Sand and Gravel		44.0'		W19	
		40		Tan Sand and Gravel		44.0'		W20	
		42		Tan Sand and Gravel		44.0'		W21	
		44		Tan Sand and Gravel		44.0'		W22	
		46		Tan Sand and Gravel		44.0'		W23	
				Total Depth = 46.0 Feet					

Hole No. 356DC-37
 Division: Southwestern
 Installation: Fort Worth
 Project: Aubrey Dam Site No. 1
 Location: 3" Shelby & 6" d.b.
 Not Shown
 Drilling Agency: Corps of Engineers
 Corps of Engineers
 356D-38
 Name of Driller: Boyd Lane
 Trinity Engineering Testing Corporation
 Direction of Hole: ☒ Vertical ☐ Inclined
 Date of Hole: 1-20-73
 Thickness of Overburden: 44.0'
 Depth Drilled into Rock: 1.5'
 Total Depth of Hole: 45.5'
 Elevation of Top of Hole: 556.68
 Elevation of Ground Water: See Note 2
 Signature of Inspector: See Note 1 under "Remarks"
 Remarks: See Note 1 under "Remarks"
 Classification of Materials:
 Brown Clay 3.0'
 Tan Silty Clay 7.0'
 Light Brown Silty Clay 11.0'
 Tan and Brown Silty Clay 0.0'
 Tan Silty Sandy Clay 0.0'
 Tan Clayey Sand 2.0'
 Tan Silty Sand 1.0'
 Tan Sand and Gravel 1.0'
 Tan Sand and Gravel 1.0'
 Gray Shale 0.0'
 Total Depth = 46.0 Feet
 Note 1:
 Soils logged by:
 A. J. Simpson,
 Trinity Engineering
 Testing Corporation.
 Note 2:
 Installed 4" plastic
 pipe from 557.68 to
 511.68 for ground-
 water observations.

Hole No. 356D-38
 Division: Southwestern
 Installation: Fort Worth
 Project: Aubrey Dam Site No. 1
 Location: 3" Shelby & 6" d.b.
 Not Shown
 Drilling Agency: Corps of Engineers
 Corps of Engineers
 356D-38
 Name of Driller: Boyd Lane
 Trinity Engineering Testing Corporation
 Direction of Hole: ☒ Vertical ☐ Inclined
 Date of Hole: 1-18-73
 Thickness of Overburden: 44.0'
 Depth Drilled into Rock: 1.5'
 Total Depth of Hole: 45.5'
 Elevation of Top of Hole: 559.07
 Elevation of Ground Water: See Note 2
 Signature of Inspector: See Note 1 under "Remarks"
 Remarks: See Note 1 under "Remarks"
 Classification of Materials:
 Dark Brown Clay 3.0'
 Brown Clay 8.5'
 Light Brown Silty Clay 26.0'
 Tan Sandy Clay 28.5'
 Tan Sand w/Gravel 36.0'
 Tan Sand and Gravel 44.0'
 Gray Shale 46.0'
 Total Depth = 45.5 Feet
 Note 1:
 Soils logged by:
 A. J. Simpson,
 Trinity Engineering
 Testing Corporation.
 Note 2:
 Installed 4" plastic
 pipe from
 for groundwater
 observations.

DRILLING Log
 Project: Aubrey Dam Site 1
 Location: 3" Shelby & 6" d.b.
 Not Shown
 Drilling Agency: Corps of Engineers
 Corps of Engineers
 356D-38
 Name of Driller: Boyd Lane
 Trinity Engineering Testing Corporation
 Direction of Hole: ☒ Vertical ☐ Inclined
 Date of Hole: 1-18-73
 Thickness of Overburden: 44.0'
 Depth Drilled into Rock: 1.5'
 Total Depth of Hole: 45.5'
 Elevation of Top of Hole: 559.07
 Elevation of Ground Water: See Note 2
 Signature of Inspector: See Note 1 under "Remarks"
 Remarks: See Note 1 under "Remarks"
 Classification of Materials:
 Dark Brown Clay 3.0'
 Brown Clay 8.5'
 Light Brown Silty Clay 26.0'
 Tan Sandy Clay 28.5'
 Tan Sand w/Gravel 36.0'
 Tan Sand and Gravel 44.0'
 Gray Shale 46.0'
 Total Depth = 45.5 Feet
 Note 1:
 Soils logged by:
 A. J. Simpson,
 Trinity Engineering
 Testing Corporation.
 Note 2:
 Installed 4" plastic
 pipe from
 for groundwater
 observations.

RECORD DRAWING-WORK AS BUILT

Sheet No. 356D-38

Division: Southwestern Installation: Fort Worth

PROJECT: Aubrey Dam Site No. 1

LOCATION: (Name of Station) Not Shown

DRILLING AGENCY: Corps of Engineers

NAME OF DRILLER: Boyd Lane

TRINITY ENGINEERING TESTING CORPORATION

DATE MOLE: 1-18-73

ELEVATION TOP OF MOLE: 559.07

THICKNESS OF OVERBURDEN: 45.5'

DEPTH DRILLED INTO ROCK: 1.5'

TOTAL DEPTH OF MOLE: 47.0'

CLASSIFICATION OF MATERIALS (Description)

LEGEND

Dark Brown Clay

Brown Clay

Light Brown Silty Clay

Tan Sandy Clay

Tan Sand w/Gravel

Tan Sand and Gravel

Tan Sand and Gravel

Gray Shale

Total Depth = 45.5 Feet

3" Shelby tube samples from 0.0'-30.0' Boring was advanced to 30.0' prior to using drilling fluid. Water at 20.5'. 6" d.b. from 30.0'-45.5'. Set 8" casing to 44.0'.

WRAP SAMPLES

1. 0.0'-1.0'

2. 1.0'-2.0'

3. 3.0'-4.5'

4. 4.5'-6.0'

5. 7.0'-8.5'

6. 8.5'-10.0'

7. 11.0'-12.5'

8. 12.5'-14.0'

9. 15.0'-16.5'

10. 16.5'-18.0'

11. 19.0'-20.5'

12. 20.5'-22.0'

13. 23.0'-24.5'

14. 24.5'-26.0'

15. 27.0'-28.5'

16. 28.5'-30.0'

DENISON SAMPLES

1. 30.0'-32.0'

2. 32.0'-34.0'

3. 42.0'-44.0'

4. 44.0'-45.5'

JAR SAMPLES

1. 2.0'-3.0'

2. 6.0'-7.0'

3. 10.0'-11.0'

4. 14.0'-15.0'

5. 18.0'-19.0'

6. 22.0'-23.0'

7. 26.0'-27.0'

8. 32.0'

9. 34.0'

10. 38.0'-40.0'

11. 44.0'

12. 45.5'

Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

Note 2: Installed 4" plastic pipe from for groundwater observations.

Sheet No. 356D-39

Division: Southwestern Installation: Fort Worth

PROJECT: Aubrey Dam Site No. 1

LOCATION: (Name of Station) Not Shown

DRILLING AGENCY: Corps of Engineers

NAME OF DRILLER: Boyd Lane

TRINITY ENGINEERING TESTING CORPORATION

DATE MOLE: 1-16-73

ELEVATION TOP OF MOLE: 560.61

THICKNESS OF OVERBURDEN: 45.5'

DEPTH DRILLED INTO ROCK: 1.5'

TOTAL DEPTH OF MOLE: 47.0'

CLASSIFICATION OF MATERIALS (Description)

LEGEND

Dark Brown Clay

Brown Silty Clay

Tan Sandy Clay

Tan Clayey Sand

Tan Sand and Gravel

Gray Shale

Total Depth = 47.0 Feet

3" Shelby tube samples from 0.0'-34.0'. 6" d.b. samples from 34.0'-47.0'. Set 8" casing to 46.0'. Boring was advanced to 34.0' prior to using drilling fluid.

WRAP SAMPLES

1. 0.0'-1.0'

2. 1.0'-2.0'

3. 3.0'-4.5'

4. 4.5'-6.0'

5. 7.0'-8.5'

6. 8.5'-10.0'

7. 11.0'-12.5'

8. 12.5'-14.0'

9. 15.0'-16.5'

10. 16.5'-18.0'

11. 19.0'-20.5'

12. 20.5'-22.0'

13. 23.0'-24.5'

14. 24.5'-26.0'

15. 27.0'-28.5'

16. 28.5'-30.0'

17. 31.0'-32.5'

18. 32.5'-34.0'

DENISON SAMPLES

1. 34.0'-36.0'

2. 36.0'-38.0'

3. 38.0'-40.0'

4. 40.0'-42.0'

5. 42.0'-44.0'

6. 45.5'-47.0'

A jar sample was taken from the shoe of each denison barrel run.

JAR SAMPLES

1. 2.0'-3.0'

2. 6.0'-7.0'

3. 10.0'-11.0'

4. 14.0'-15.0'

5. 18.0'-19.0'

6. 22.0'-23.0'

7. 26.0'-27.0'

8. 30.0'-31.0'

9. 36.0'

10. 38.0'

11. 40.0'

12. 42.0'

13. 44.0'

14. 44.0'-45.5'

15. 47.0'

Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

RECORD DRAWING-WORK AS BUILT

U.S. ARMY ENGINEER DISTRICT, FORT WORTH

CORPS OF ENGINEERS

FORT WORTH, TEXAS

DESIGNED BY: RAY ROBERTS LAKE

DRAWN BY: ELM FORK, TRINITY RIVER, TEXAS

REVIEWED BY: EMBANKMENT, SPILLWAY AND

SUBMITTED BY: LOGS OF BORINGS

8S6D-36, 3S6DC-37, 3S6D-38, AND 3S6D-39

INVITATION NO. DACW63-82-B-0025 DATE MAR, 1982

CONTRACT NO. CACW63-82-C-0023

DRAWING NUMBER

SHEET NO. 21

TO ACCOMPANY FOUNDATION REPORT

CONTRACT NO. DACW63-82-C-0023

Hole No. 354C-41
 Date: 1-13-73
 Location: Aubrey Dam Site No. 1
 Project: Corps of Engineers
 Drilled by: Bill Stanton
 Coring by: Trinity Engineering Testing Corp.
 Date of Coring: 1-13-73
 Date of Report: 2-15-73
 Depth of Hole: 100.0
 Direction of Hole: Vertical
 Remarks: See Note 2
 Index "Remarks"
 01 DRILLING:
 0.0'-9.0' 3" Shelby
 Tube
 9.0'-49.0' NX-Core
 and 2" Split-Spoon
 49.0'-59.0' 4" Core
 *All covered NX-
 Core Samples were
 placed in TETCO's
 cardboard core boxes
 Set 6" casing to 49.0'
 depth. Sand washed
 away with drilling
 fluid.
 04 JAR SAMPLES:
 1. 2.0'-3.0'
 2. 6.0'-7.0'
 05 BAC SAMPLES:
 1. 0.0'-1.0'
 2. 7.0'-8.0'
 3. 8.0'-9.0'
 4. 18.0'-19.0'
 5. 23.0'-24.0'
 6. 28.0'-29.0'
 7. 33.0'-34.0'
 8. 38.0'-39.0'
 9. 43.0'-44.0'
 06 WRAP SAMPLES:
 1. 1.0'-2.0'
 2. 3.0'-4.0'
 3. 8.0'-9.0'
 4. 18.0'-19.0'
 5. 47.0'-48.5'
 07 CARTONS:
 1. 52.5'-53.4'
 08 BOXES:
 1. 49.0'-54.0'
 2. 54.0'-59.0'
 09 Note 1:
 Soils logged by:
 A. J. Simpson,
 Trinity Engineering
 Testing Corporation
 10 Primary logged by:
 Marr,
 Fort Worth District,
 Corps of Engineers
 11 Note 2:
 2" plastic pipe installed
 from 66.2 to 616.2
 for groundwater ob-
 servations.

Hole No. 354C-42
 Date: 1-13-73
 Location: Aubrey Dam Site No. 1
 Project: Corps of Engineers
 Drilled by: Bill Stanton
 Coring by: Trinity Engineering Testing Corp.
 Date of Coring: 1-13-73
 Date of Report: 2-15-73
 Depth of Hole: 100.0
 Direction of Hole: Vertical
 Remarks: See Note 2
 Index "Remarks"
 01 DRILLING:
 0.0'-12.0' 3" Shelby
 Tube
 12.0'-50.0' NX-Core
 50.0'-41.0' Split-
 Spoon Samples at
 5' intervals.
 50.0'-55.0' 4" Core
 Drilling fluid was used
 below the 10.5' depth.
 Set casing to 50.0'
 02 JAR SAMPLES:
 1. 2.0'-3.0'
 2. 6.0'-7.0'
 3. 10.0'-10.5'
 03 BAC SAMPLES:
 1. 10.5'-12.0'
 2. 12.0'-13.0'
 3. 16.0'-21.0'
 4. 25.0'-26.0'
 5. 30.0'-31.0'
 6. 33.0'-35.6'
 7. 40.0'-41.0'
 04 BOX 1:
 5.0'-55.0'
 05 CARTON 1:
 51.8'-52.7'
 Note 1:
 Soils Logged By:
 A. J. Simpson,
 Trinity Engineering
 Testing Corporation
 Primary logged by:
 Marr,
 Corps of Engineers,
 Fort Worth District
 Note 2:
 Installed 2" plastic
 pipe from 463.0
 to 613.0 for ground
 water observations.

Hole No. 354C-5
 Date: 1-13-73
 Location: Aubrey Dam Site No. 1
 Project: Corps of Engineers
 Drilled by: Bill Stanton
 Coring by: Trinity Engineering Testing Corp.
 Date of Coring: 1-13-73
 Date of Report: 2-15-73
 Depth of Hole: 100.0
 Direction of Hole: Vertical
 Remarks: See Note 2
 Index "Remarks"
 01 DRILLING:
 0.0'-12.0' 3" Shelby
 Tube
 12.0'-50.0' NX-Core
 50.0'-41.0' Split-
 Spoon Samples at
 5' intervals.
 50.0'-55.0' 4" Core
 Drilling fluid was used
 below the 10.5' depth.
 Set casing to 50.0'
 02 JAR SAMPLES:
 1. 2.0'-3.0'
 2. 6.0'-7.0'
 3. 10.0'-10.5'
 03 BAC SAMPLES:
 1. 10.5'-12.0'
 2. 12.0'-13.0'
 3. 16.0'-21.0'
 4. 25.0'-26.0'
 5. 30.0'-31.0'
 6. 33.0'-35.6'
 7. 40.0'-41.0'
 04 BOX 1:
 5.0'-55.0'
 05 CARTON 1:
 51.8'-52.7'
 Note 1:
 Soils Logged By:
 A. J. Simpson,
 Trinity Engineering
 Testing Corporation
 Primary logged by:
 Marr,
 Corps of Engineers,
 Fort Worth District
 Note 2:
 Installed 2" plastic
 pipe from 463.0
 to 613.0 for ground
 water observations.

DRILLING LOG		Southwest	Fort Worth	Sheet 1
1. PROJECT Aubrey Dam Site No. 1		2. DATE AND TIME OF LOG 10/11/50		3. SCALE 1" = 10'
4. LOCATION X12, 137, 814; Y141, 814; Z100'		5. NAME OF CONTRACTOR DANCO Model 1250		6. NAME OF LOGGERS J. A. Simpson
7. NAME OF COMPANY Corps of Engineers		8. TOTAL NUMBER OF LOGS 1		9. TOTAL NUMBER OF LOGS 1
10. NAME OF LOGGERS Bill Stanton		11. DATE MADE 11-22-52		12. DATE MADE 12-27-52
13. TYPE OF ENGINEERING TESTING C-200-3122		14. ELEVATION OF GROUND SURFACE See Note 1		15. ELEVATION OF GROUND SURFACE See Note 1
16. THICKNESS OF OVERBURDEN 7.8'		17. ELEVATION OF TOP OF HOLE 587.66		18. TOTAL CORE RECOVERY FOR SAMPLES A, D, F
19. DEPTH DRILLED INTO ROCK 19.3'		20. TOTAL CORE RECOVERY FOR SAMPLES See Note 1		21. TOTAL CORE RECOVERY FOR SAMPLES See Note 1
22. TOTAL DEPTH OF HOLE 25.0'		23. TOTAL DEPTH OF HOLE 25.0'		24. TOTAL DEPTH OF HOLE 25.0'
ELEVATION 1	DEPTH 2	LOGGING 3	CLASSIFICATION OF MATERIALS (See Appendix)	REMARKS (See Appendix)
585.66	2		2.0' Brown Silty Clay	1" Shelby tube samples 0.0', 7.8', and 13.0'-21.0'.
	4		Tan Sandy Clay	JAR SAMPLES
581.36	6		6.3' Tan and Brown Clay w/ Scattered Gravel	1. 2.0'-3.0'
579.46	8		2.8'-11.8' Limestone Gravel, Mod. Hard, Weath. Tan w/Num Clay Lenses, Tan and 11.8'-20.5' Stained.	2. 6.0'-7.0'
575.86	10		11.8'-20.5' Snail, Weath. Tan, and Gray Soft, Massive Scattered Tan Sand Pockets and Lenses	3. 9.0'-10.0'
	12		20.5'-25.0' Shale, Gray, Mod. Hard, w/ Occasional Sand and Sandstone Seams	4. 14.0'-15.0'
567.16	14		25.0' Total Depth = 25.0 Feet	5. 18.0'-19.0'
	16			6. 22.0'-23.3'
	18			WRAP SAMPLES
	20			1. 0.0'-1.0'
	22			2. 1.0'-2.0'
	24			3. 3.0'-4.0'
562.86	26			4. 4.0'-5.0'
				5. 5.0'-6.0'
				6. 7.0'-7.8'
				7. 15.0'-16.0'
				8. 16.0'-17.0'
				9. 17.0'-18.0'
				10. 19.0'-20.0'
				11. 20.0'-21.0'
				12. 23.0'-24.8'

Settled at 7.8' and cleaned out to 9.0'.
Used NW-1/4 Sec 20, T. 8N., R. 10E., S. 10N., 9.0'-13.0', and 21.0'-25.0'.

Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation, Primary Logged By: Green & Marx Corps of Engineers, Fort Worth District.

Note 2: Boring advanced to 7.8-foot depth prior to using drilling fluid and groundwater was not encountered above that depth.

SYM	NO.	ACTION	DATE	DESCRIPTION OF REVISION	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY: ----- 	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT, SPILLWAY AND OUTLET WORKS LOGS OF BORINGS				
DRAWN BY:					
CHECKED BY:					
-----3S6D-40, 3S4C-41, 3S4C-42, 3S6DC-50 AND 35-					
SUBMITTED BY:	INVITATION NO DACW63-82-B-0025			DATE MAR, 1982	
ENGINEER	CONTRACT NO DACW63-82-C-0083			SEQUENCE NO	
	DRAWING NUMBER			SHEET NO. OF	
				22	

TO ACCOMPANY FOUNDATION REPORT

Hole No. 35-52

DRILLING : Southwestern		INSTALLATION : Fort Worth				
PROJECT : Aubrey Dam Site No. 1		HOLE NO. : 35-52				
LOCATION : (Coordinates of Boring) X=2,138.455; Y=612.795		DATE FOR ELEVATION DATA (F.M. or M.S.L.) : MSL				
CORPS OF ENGINEERS		FALLING MODEL 44				
NAME OF DRILLER : Boyd Lane		TOTAL NUMBER CORE BOIES : 0				
TRINITY ENGINEERING TESTING CORPORATION		ELEVATION GROUND WATER : See Note 2				
DIRECTION OF HOLE : <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DATE MOLE : 1-23-73				
THICKNESS OF OVERBURDEN : 17.5'		ELEVATION TOP OF HOLE : 568.34				
DEPTH DRILLED INTO ROCK : 1.5'		TOTAL CORE RECOVERY FOR BORING : ---				
TOTAL DEPTH OF HOLE : 19.0'		SIGNATURE OF INSPECTOR : See Note 1 under "Remarks"				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Descriptive)	SCORE RECOVERY (%)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water level, depth of measuring, etc., if significant)
566.34	2		Brown Sandy Clay		W1	Boring was advanced to 15.0' prior to using drilling fluid.
	4		Brown and Tan Sandy Clay w/Iron Ore		W2	Water at 12.5'.
562.34	6		6.0'		W3	All samples taken with 3" Shelby tube, except B2, which is a washed sample.
560.04	8		Brown and Light Gray Sandy Clay w/Iron Ore		W4	
	10		Tan Clayey Silty Sand w/Gravel		W5	
	12				B1	WRAP SAMPLES
	14				J3	1. 0.0'-1.0'
	16				W6	2. 1.0'-2.0'
550.84	18		17.5'		W7	3. 3.0'-4.5'
549.34	20		Gray Shale		J4	4. 4.5'-6.0'
			Total Depth = 19.0 Feet		B2	5. 7.0'-8.5'
					J5	6. 11.0'-12.5'
						7. 12.5'-14.0'
						BAG SAMPLES
						1. 8.5'-10.0'
						2. 15.0'-18.0'
						JAR SAMPLES
						1. 2.0'-3.0'
						2. 6.0'-7.0'
						3. 10.0'-11.0'
						4. 14.0'-15.0'
						5. 18.0'-19.0'
<p>Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.</p> <p>Note 2: Groundwater was encountered at 12.5'.</p>						

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE
MAN 71 (MODIFIED) (TRANSLUCENT)

PROJECT : Aubrey Dam Site No. 1

HOLE NO. : 35-52

Hole No. 35-53

DRILLING : Southwestern		INSTALLATION : Fort Worth				
PROJECT : Aubrey Dam Site No. 1		HOLE NO. : 35-53				
LOCATION : (Coordinates of Boring) X=2,138.455; Y=612.795		DATE FOR ELEVATION DATA (F.M. or M.S.L.) : MSL				
CORPS OF ENGINEERS		FALLING MODEL 44				
NAME OF DRILLER : Boyd Lane		TOTAL NUMBER CORE BOIES : 0				
TRINITY ENGINEERING TESTING CORPORATION		ELEVATION GROUND WATER : See Note 2				
DIRECTION OF HOLE : <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DATE MOLE : 1-23-73				
THICKNESS OF OVERBURDEN : 12.5'		ELEVATION TOP OF HOLE : 562.37				
DEPTH DRILLED INTO ROCK : 4.5'		TOTAL CORE RECOVERY FOR BORING : ---				
TOTAL DEPTH OF HOLE : 17.0'		SIGNATURE OF INSPECTOR : See Note 1 under "Remarks"				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Descriptive)	SCORE RECOVERY (%)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water level, depth of measuring, etc., if significant)
	2		Brown Sandy Clay w/Gravel		W1	Used 3" Shelby tube for all samples.
	4				W2	
	6		7.0'		W3	WRAP SAMPLES
555.37	8		Brown and Light Gray Sandy Clay w/Scattered Gravel and Calcareous Particles		W4	1. 0.0'-1.0'
	10				W5	2. 1.0'-2.0'
	12		12.5'		W6	3. 3.0'-4.0'
549.87	14		Light Gray and Yellow Weathered Shale w/Silt Layers		W7	4. 4.5'-6.0'
546.37	16		Gray Shale w/Sandstone Lenses		W8	5. 7.0'-8.5'
545.37	18		17.0'		W9	6. 8.5'-10.0'
			Total Depth = 17.0 Feet		J4	7. 11.0'-12.0'
					J5	8. 12.5'-14.0'
						9. 15.0'-16.5'
						JAR SAMPLES
						1. 2.0'-3.0'
						2. 6.0'-7.0'
						3. 10.0'-11.0'
						4. 14.0'-15.0'
						BAG SAMPLE
						1. 16.5'-17.0'
<p>Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.</p> <p>Note 2: Boring was advanced to 17.0 feet depth with out using drilling fluid and groundwater was not encountered near that depth.</p>						

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE
MAN 71 (MODIFIED) (TRANSLUCENT)

PROJECT : Aubrey Dam Site No. 1

HOLE NO. : 35-53

Map No. 35-54

PROJECT: Aubrey Dam Site No. 1

LOCATION: X = 2,140,180; Y = 612,640

DATE: 3-9-73

ENGINEER: A. J. Simpson

TRINITY ENGINEERING TESTING CORP.

Notes:

Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation

Note 2: Drilling fluid was utilized in advancing the boring from the ground surface down.

DRILLING LOG		Southwestern		East Worth	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	ELEVATION	DEPTH
552.95	2		Gray Clay	550.7	2
	4				4
	6				6
	8				8
	10				10
	12				12
	14				14
	16				16
	18				18
	20				20
	22				22
	24				24
	26				26
531.45	28		Tan Sand	530.2	28
531.75	30			527.7	30
	32				32
	34				34
	36				36
	38				38
	40				40
	42				42
	44				44
512.45	46		Gray Shale	513.7	46
511.95	48				48
			Total Depth = 46.5 Feet		

DRILLING LOG		Southwestern		East Worth	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	ELEVATION	DEPTH
550.7	2		Gray Clay	550.7	2
	4				4
	6				6
	8				8
	10				10
	12				12
	14				14
	16				16
	18				18
	20				20
	22				22
	24				24
530.2	26			530.2	26
	28				28
527.7	30			527.7	30
	32				32
	34				34
	36				36
	38				38
518.7	40			518.7	40
	42				42
513.7	44			513.7	44
	46				46
			Total Depth = 43.0 Feet		

RECORD DRAWING-WORK AS BUILT

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND
OUTLET WORKS
LOGS OF BORINGS
3S-52, 3S-53, 3S-54, 3S-55 AND 3S-56

SUBMITTED BY: INVITATION NO. DACW63-82B-0023 DATE MAR, 1982

ENGINEER: CONTRACT NO. DACW63-72-C-0073 SHEET NO. 23

TO ACCOMPANY FOUNDATION REPORT

Drilling Log Form 1834-A (10-11-67)

Project: Aubrey Dam Site No. 1

Location: Southwest

Drilling Log: Fort Worth

Drilling Date: 10/1/67

Drilling Time: 8:00 AM to 4:00 PM

Drilling Depth: 30.0 feet

Drilling Rate: 1.0 ft/min

Drilling Fluid: Water

Drilling Method: Rotary

Drilling Equipment: 1500

Drilling Operator: J. Simpson

Drilling Supervisor: J. Simpson

Drilling Engineer: J. Simpson

Drilling Inspector: J. Simpson

Drilling Recorder: J. Simpson

Drilling Notes: See Note 1 under Remarks

Drilling Log Data:

Elevation	Depth	Soil Description	Soil Color	Soil Texture	Soil Structure	Soil Hardness	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Compressibility	Soil Permeability	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Index	Soil Plastic Index	Soil Shrinkage Index	Soil Liquid Plasticity Chart	Soil Plasticity Chart	Soil Classification	Soil Group	Soil Symbol	Soil Notes
549.5	0.0	Gray Clay	Gray	Clay	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	10	CL	CL	CL	
540.0	10.0	Brown Clay w/Calcareous Particles	Brown	Clay	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
536.5	20.0	Tan Sandy Clay	Tan	Clay	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
528.5	28.0	Tan Sand and Gravel	Tan	Sand	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
526.5	30.0	Gray Shale	Gray	Shale	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		

Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation

Note 2: Boring was advanced to 22.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.

ENG FORM 1834-A (10-11-67) PROJECT: Aubrey Dam Site No. 1 DATE: 10-1-67

Drilling Log Form 1834-A (10-11-67)

Project: Aubrey Dam Site No. 1

Location: Southwest

Drilling Log: Fort Worth

Drilling Date: 10/1/67

Drilling Time: 8:00 AM to 4:00 PM

Drilling Depth: 70.0 feet

Drilling Rate: 1.0 ft/min

Drilling Fluid: Water

Drilling Method: Rotary

Drilling Equipment: 1500

Drilling Operator: J. Simpson

Drilling Supervisor: J. Simpson

Drilling Engineer: J. Simpson

Drilling Inspector: J. Simpson

Drilling Recorder: J. Simpson

Drilling Notes: See Note 1 under Remarks

Drilling Log Data:

Elevation	Depth	Soil Description	Soil Color	Soil Texture	Soil Structure	Soil Hardness	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Compressibility	Soil Permeability	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Index	Soil Plastic Index	Soil Shrinkage Index	Soil Liquid Plasticity Chart	Soil Plasticity Chart	Soil Classification	Soil Group	Soil Symbol	Soil Notes
627.0	0.0	Dark Brown Clay w/ Scattered Gravel	Dark Brown	Clay	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
624.0	4.0	4.0'-7.0' Shale, Severely Weathered, Soft Tan, w/Calcareous Noda. and Scatt. 7.0' Gravels	Dark Brown	Shale	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
613.0	18.0	18.0'-40.5' Shale, Dark Gray, Soft-Mod Hard, Med. Bedded to Massive Scatt. Fossil Frag., often Sandy w/Occas. ss Seams and Siltstone is fine-grained, Lt. Gray, Soft-Mod. Hard, Friable w/Shale Streaks.	Dark Gray	Shale	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
590.5	35.3	35.3' Siltstone Nodules	Dark Gray	Siltstone	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
577.8	46.8	46.8'-47.0' Siltstone nodules	Dark Gray	Siltstone	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
561.0	70.0	70.0' Total Depth = 70.0 Feet	Dark Gray	Siltstone	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		

Note 1: Soils Logged by: A. J. Simpson, Trinity Engineering Testing Corporation

Note 2: Boring was advanced to 22.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.

ENG FORM 1834-A (10-11-67) PROJECT: Aubrey Dam Site No. 1 DATE: 10-1-67

Drilling Log Form 1834-A (10-11-67)

Project: Aubrey Dam Site No. 1

Location: Southwest

Drilling Log: Fort Worth

Drilling Date: 10/1/67

Drilling Time: 8:00 AM to 4:00 PM

Drilling Depth: 70.0 feet

Drilling Rate: 1.0 ft/min

Drilling Fluid: Water

Drilling Method: Rotary

Drilling Equipment: 1500

Drilling Operator: J. Simpson

Drilling Supervisor: J. Simpson

Drilling Engineer: J. Simpson

Drilling Inspector: J. Simpson

Drilling Recorder: J. Simpson

Drilling Notes: See Note 1 under Remarks

Drilling Log Data:

Elevation	Depth	Soil Description	Soil Color	Soil Texture	Soil Structure	Soil Hardness	Soil Moisture	Soil Temperature	Soil pH	Soil Specific Gravity	Soil Unit Weight	Soil Void Ratio	Soil Porosity	Soil Compressibility	Soil Permeability	Soil Swell	Soil Shrinkage	Soil Liquid Limit	Soil Plastic Limit	Soil Shrinkage Limit	Soil Liquid Index	Soil Plastic Index	Soil Shrinkage Index	Soil Liquid Plasticity Chart	Soil Plasticity Chart	Soil Classification	Soil Group	Soil Symbol	Soil Notes
646.51	0.0	Gray Clay	Gray	Clay	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
640.01	6.5	Brown Clay w/Calcareous Particles	Brown	Clay	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
637.01	13.0	Tan Sandy Clay	Tan	Clay	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
620.01	26.5	Tan Sand and Gravel	Tan	Sand	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		
579.01	70.0	70.0' Total Depth = 70.0 Feet	Dark Gray	Siltstone	Massive	Hard	Moist	70°F	7.5	2.65	120 pcf	1.0	30%	0.5	0.01	0.0	0.0	25	15	5	15	10	10	10	CL	CL	CL		

Note 1: Soils Logged by: A. J. Simpson, Trinity Engineering Testing Corporation

Note 2: Boring was advanced to 22.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.

ENG FORM 1834-A (10-11-67) PROJECT: Aubrey Dam Site No. 1 DATE: 10-1-67

Aubrey Dam Site No. 1 254C-58

DWS FORM 504 OF 1836-A ENCLOSURE 1	DATE: 1954-05-10	PROJECT Aubrey Dam Site No. 1	FILE NO. 154C-57
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BMO FORM 1834-A (MODIFIED) PROPERTY Aubrey Farm Site No. 1 J54C-60

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DRILLING LOG		Southwestern		Fort Worth		Note No. 1001-10	
Aubrey Dam Site No. 1		MSL		MSL		MSL	
X=2,132,097, Y=613,127, Sta. 41+74.71		DAMCO Model 1250		DAMCO Model 1250		DAMCO Model 1250	
Corps of Engineers		354C-60		354C-60		354C-60	
Bill Stanton		See Note 2		See Note 2		See Note 2	
Trinity Engineering Testing Corporation		See Note 2		See Note 2		See Note 2	
12-15-72		12-15-72		12-15-72		12-15-72	
50.0'		50.0'		50.0'		50.0'	
See Note 1 under "Remarks"		See Note 1 under "Remarks"		See Note 1 under "Remarks"		See Note 1 under "Remarks"	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	REMARKS	REMARKS	REMARKS	REMARKS
608.12	1	1.3 Brown Clay	W1	3" Shelby tube sample 0.0'-23.0'			
	2	Tan Clay w/Lignite and Calcareous Particles	W2	Set tub at 23.0'			
602.42	4	5.0'-8.0'	W3	Cleaned hole to 26.5'			
	6	Limestone, Severely Weath.	W4	Set 6" casing to 27.0'			
599.42	8	8.0'-10.0' Clay, Tan, Sandy, w/Iron Ore and Lignite Particles	W5	Used 4" core bbl.			
592.42	10	10.0'-17.0' Clay, Tan, Sandy, w/Iron Ore and Lignite Particles	W6	JAR SAMPLES			
	12	17.0'-28.7'	W7	1. 2.0'-3.0'			
	14		W8	2. 5.6'-6.6'			
	16		W9	3. 8.0'-9.0'			
	18		W10	4. 10.0'-11.0'			
	20		W11	5. 14.0'-15.0'			
	22		W12	6. 18.0'-19.0'			
	24		W13	7. 22.0'-23.0'			
	26		W14	8. 26.5'-27.0'			
587.72	28	28.7'	W15	WRAP SAMPLES			
	30	SHALE, Gray, Massive Mod. Hard, w/Occas. Gray, well Compacted, Fine-Med. Grained Sand Lenses.	W16	1. 0.0'-1.0'			
	32		W17	2. 1.0'-2.0'			
	34		W18	3. 3.0'-4.0'			
	36		W19	4. 4.0'-5.0'			
	38		W20	5. 9.0'-10.0'			
	40		W21	6. 11.0'-12.0'			
	42		W22	7. 12.0'-13.0'			
	44		W23	8. 13.0'-14.0'			
	46		W24	9. 15.0'-16.0'			
	48		W25	10. 16.0'-17.0'			
	50		W26	11. 17.0'-18.0'			
	52		W27	BAG SAMPLES			
	54		W28	1. 5.0'-5.6'			
	56		W29	2. 6.6'-8.0'			
	58		W30	3. 19.0'-22.0'			
	60		W31	4. 20.0'-21.0'			
	62		W32	5. 21.0'-22.0'			
	64		W33	6. 22.0'-23.0'			
	66		W34	CARTON SAMPLES			
	68		W35	1. 27.5'-28.0'			
	70		W36	2. 30.0'-31.1'			
	72		W37	3. 36.2'-37.0'			
	74		W38	4. 41.4'-42.0'			
	76		W39	5. 47.6'-48.4'			
	78		W40	Note 1:			
	80		W41	Soils Logged By:			
	82		W42	A. J. Simpson,			
	84		W43	Trinity Engineering			
	86		W44	Testing Corporation			
	88		W45	Primary Logged By:			
	90		W46	Marr and Marple,			
	92		W47	Corps of Engineers,			
	94		W48	Fort Worth District			
	96		W49	Note 2:			
	98		W50	Installed 2" plastic			
	100		W51	pipe from 608.4 to			
	102		W52	583.3 for ground-			
	104		W53	water observations.			
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CLASSIFICATION OF MATERIALS (Overburden)	1 CORE RECOVERED LAY	2 CORE RECOVERED LAY	REMARKS (Depth, core, water loss, depth of overburden, etc., if significant)
91.0-91.5 Limestonic nodules HARD, GRAY			
91.5-106.0' SHALE, MOD. HARD, CALD, MASSIVE, GRAY			
106.0-111.0' LIMESTONE, HARD, MASSIVE TO NODULAR, FOSSILIFEROUS, GRAY			
111.0-120.0' SHALE, MOD. HARD, DARK GRAY TO BLACK, MASSIVE SCAT. FOSS. ZONES			
119.5-120.0' VERY FOSSILIFEROUS			

NOTES ARE OBSOLETE.

PROJECT: AUBREY DAM SITE #1

HOLE NO.: 354C-62

Hole No. 8A6D-64

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1	
Southwestern		Fort Worth		of 2 SHEETS			
1. PROJECT: Aubrey Dam Site				10. SIZE AND TYPE OF BIT: 8" Auger, 6" d.b., 1" fishtail			
2. LOCATION: (Coordinates of Bureau)				11. MANUFACTURER'S DESIGNATION OF DRILL: Felling 1500			
3. DRILLING AGENCY: Corps of Engineers				12. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 5			
4. HOLE NO. (As shown on drawing title and site map): 8A6D-64				13. TOTAL NUMBER CORE BOXES: --			
5. NAME OF DRILLER: Newhouse				14. ELEVATION GROUND WATER: ----			
6. DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED (See PROJ. VERT.)				15. DATE HOLE: STARTED 9 April 73 COMPLETED 11 April 73			
7. THICKNESS OF OVERBURDEN: 44.0				16. ELEVATION TOP OF HOLE: ----			
8. DEPTH DRILLED INTO ROCK: 57.0				17. TOTAL CORE RECOVERY FOR SPRING: 1			
9. TOTAL DEPTH OF HOLE: 101.0				18. SIGNATURE OF INSPECTOR: <i>James R. Thomas</i>			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1 CORE RECOVERED LAY	2 CORE RECOVERED LAY	REMARKS (Drilling time, water loss, depth of overburden, etc., if significant)	
			0.0' to 24.0'			1. Water level not determined.	
			CLAY -			2. Jars:	
			0.0 to 4.0 - calc., moist, stiff, brown.			A. 26.0	
			4.0 to 14.0 - calc., sandy, moist, stiff, brown.			B. 28.0	
			14.0 to 19.0 - calc., scattered gravel, moist, stiff, brown.			C. 36.0	
			19.0 to 24.0 - calc., moist, stiff, gray and tan.			D. 38.0	
			24.0' to 26.0'			E. 38.6	
			CLAY, calc., moist, stiff, gray and tan.			NOTE: All jar samples taken from shoe and catcher of Denison sampler.	
			26.0' to 34.0'			3. Denison cans:	
			NO RECOVERY -			1. 24.0 to 26.0	
			34.0' to 37.3'			2. 34.0 to 36.0	
			CLAY, calc., moist, stiff, gray and tan.			3. 36.0 to 38.0	
			37.3' to 38.6'			4. Hole squeezing badly at 27.0'. 4" plastic pipe set to 45.0'. Another offset from 6DC-30, Hole 8A6D-64A, will be drilled to obtain Denison samples from 26.0 to 34.0. Offset bearings and elevations will be furnished after completion.	
			SAND, gravelly, clayey, saturated, med. dense, tan.			5. Drilling:	
			Refusal w/d. bb'1. at 38.6' - Start 3" fish-tail at 38.6' -			0.0' to 24.0' - 8" auger - no sample taken.	
			38.6' to 44.0'			24.0' to 38.6' - 6" d. bb'1.	
			SAND and GRAVEL, med. dense.			38.6' to 101.0' - 3" fishtail.	
			Drilled into primary material at 44.0' -			6. Identification of materials from 38.6' to 101' based on cuttings and drill action.	
			44.0' to 101.0'			7. 12" log from 45' to 101'	
			SHALE, soft to m. hard w/LIMESTONE from 86.5' to 89.6'.				
			T.D. - 101.0'				

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1	
Southwestern		Fort Worth		of 2 SHEETS			
1. PROJECT: Aubrey Dam Site				10. SIZE AND TYPE OF BIT: 8" Auger, 6" d.b., 1" fishtail			
2. LOCATION: (Coordinates of Bureau)				11. MANUFACTURER'S DESIGNATION OF DRILL: Felling 1500			
3. DRILLING AGENCY: Corps of Engineers				12. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 5			
4. HOLE NO. (As shown on drawing title and site map): 8A6D-64				13. TOTAL NUMBER CORE BOXES: --			
5. NAME OF DRILLER: Newhouse				14. ELEVATION GROUND WATER: ----			
6. DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED (See PROJ. VERT.)				15. DATE HOLE: STARTED 9 April 73 COMPLETED 11 April 73			
7. THICKNESS OF OVERBURDEN: 44.0				16. ELEVATION TOP OF HOLE: ----			
8. DEPTH DRILLED INTO ROCK: 57.0				17. TOTAL CORE RECOVERY FOR SPRING: 1			
9. TOTAL DEPTH OF HOLE: 101.0				18. SIGNATURE OF INSPECTOR: <i>James R. Thomas</i>			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1 CORE RECOVERED LAY	2 CORE RECOVERED LAY	REMARKS (Drilling time, water loss, depth of overburden, etc., if significant)	
			0.0' to 24.0'			1. Water level not determined.	
			CLAY -			2. Jars:	
			0.0 to 4.0 - calc., moist, stiff, brown.			A. 26.0	
			4.0 to 14.0 - calc., sandy, moist, stiff, brown.			B. 28.0	
			14.0 to 19.0 - calc., scattered gravel, moist, stiff, brown.			C. 36.0	
			19.0 to 24.0 - calc., moist, stiff, gray and tan.			D. 38.0	
			24.0' to 26.0'			E. 38.6	
			CLAY, calc., moist, stiff, gray and tan.			NOTE: All jar samples taken from shoe and catcher of Denison sampler.	
			26.0' to 34.0'			3. Denison cans:	
			NO RECOVERY -			1. 24.0 to 26.0	
			34.0' to 37.3'			2. 34.0 to 36.0	
			CLAY, calc., moist, stiff, gray and tan.			3. 36.0 to 38.0	
			37.3' to 38.6'			4. Hole squeezing badly at 27.0'. 4" plastic pipe set to 45.0'. Another offset from 6DC-30, Hole 8A6D-64A, will be drilled to obtain Denison samples from 26.0 to 34.0. Offset bearings and elevations will be furnished after completion.	
			SAND, gravelly, clayey, saturated, med. dense, tan.			5. Drilling:	
			Refusal w/d. bb'1. at 38.6' - Start 3" fish-tail at 38.6' -			0.0' to 24.0' - 8" auger - no sample taken.	
			38.6' to 44.0'			24.0' to 38.6' - 6" d. bb'1.	
			SAND and GRAVEL, med. dense.			38.6' to 101.0' - 3" fishtail.	
			Drilled into primary material at 44.0' -			6. Identification of materials from 38.6' to 101' based on cuttings and drill action.	
			44.0' to 101.0'			7. 12" log from 45' to 101'	
			SHALE, soft to m. hard w/LIMESTONE from 86.5' to 89.6'.				
			T.D. - 101.0'				

Hole No. 8A6D-64

Hole No. 8A6D-64A

Division Southwestern		INSTALLATION Fort Worth		SHEET 1 OF 2 SHEETS	
PROJECT Aubrey Dam Site		NO. SIZE AND TYPE OF BIT 8" auger, 6" d. bb'l.		DATE FOR ELEVATION 10/10/73	
LOCATION (Continued on drawing sheet)		MANUFACTURER'S DESIGNATION OF DRILL Falling 1500		TOTAL NO. OF OVER- BORDEN SAMPLES TAKEN 5	
ENGINEERS 8A6D-64		TOTAL NUMBER CORE BORES --		UNDISTURBED 3	
DATE 10/10/73		ELEVATION GROUND WATER --		--	
DIRECTION OF HOLE VERTICAL		DATE HOLE 9 April 73		COMPLETED 11 April 73	
THICKNESS OF OVERBURDEN --		ELEVATION TOP OF HOLE --		--	
DEPTH DRILLED INTO ROCK --		TOTAL CORE RECOVERY FOR BORING --		--	
TOTAL DEPTH OF HOLE 101.0		SIGNATURE OF INSPECTOR <i>James A. Christie</i>		--	
LEGEND	CLASSIFICATION OF MATERIALS (Description)	NO. CORE RECOVERED	NO. SAMPLE TAKEN	REMARKS (Listing time, water level, depth of penetration, etc., if significant)	
	0.0' to 24.0'			1. Water level not determined.	
	CLAY - - -			2. Jars: A. 26.0 B. 28.0 C. 36.0 D. 38.0 E. 38.6	
	0.0 to 4.0 - calc., moist, stiff, brown.			NOTE: All jar samples taken from shoe and catcher of denison sampler.	
	4.0 to 14.0 - calc., sandy, moist, stiff, brown.			3. Denison cans: 1. 24.0 to 26.0 2. 34.0 to 36.0 3. 36.0 to 38.0	
	14.0 to 19.0 - calc., scattered gravel, moist, stiff, brown.			4. Hole squeezing badly at 27.0'. 4" plastic pipe set to 45.0'. Another offset from 6D-30, Hole 8A6D-64A, will be drilled to obtain denison samples from 26.0 to 34.0. Offset bearings will be furnished after completion.	
	19.0 to 24.0 - calc., moist, stiff, gray and tan.			5. Drilling: 0.0' to 24.0' - 8" auger - no sample taken. 24.0' to 38.6' - 6" d. bb'l. 38.6' to 101.0' - fishtail.	
	-- Start 6" d. bb'l at 24.0'			6. Identification of materials from 38.6' to 101' based on cuttings and drill action.	
	24.0' to 26.0'			7. 7" log from 45' to 101'	
	CLAY, calc., moist, stiff, gray and tan.				
	26.0' to 34.0'				
	NO RECOVERY -				
	34.0' to 37.3'				
	CLAY, sandy, moist, med. stiff, gray and tan.				
	37.3' to 38.6'				
	SAND, gravelly, clayey, saturated, med. dense, tan.				
	-- Refusal w/d. bb'l. at 38.6' - Start 3" fishtail at 38.6' -				
	38.6' to 44.0'				
	SAND and GRAVEL, med. dense.				
	-- Drilled into primary material at 44.0' -				
	44.0' to 101.0'				
	SHALE, soft to m. hard w/ Limestones from 86.5' to 89.6'.				
	T.D. - 101.0'	101.0	101.0		

Division Southwestern		INSTALLATION Fort Worth		SHEET 1 OF 1 SHEETS	
PROJECT Aubrey Dam Site		NO. SIZE AND TYPE OF BIT 8" auger, 6" d. bb'l.		DATE FOR ELEVATION 10/10/73	
LOCATION (Continued on drawing sheet)		MANUFACTURER'S DESIGNATION OF DRILL Falling 1500		TOTAL NO. OF OVER- BORDEN SAMPLES TAKEN 6	
ENGINEERS 8A6D-64A		TOTAL NUMBER CORE BORES --		UNDISTURBED 6	
DATE 10/10/73		ELEVATION GROUND WATER --		--	
DIRECTION OF HOLE VERTICAL		DATE HOLE 11 Apr 73		COMPLETED 11 Apr 73	
THICKNESS OF OVERBURDEN --		ELEVATION TOP OF HOLE --		--	
DEPTH DRILLED INTO ROCK --		TOTAL CORE RECOVERY FOR BORING --		--	
TOTAL DEPTH OF HOLE 36.0		SIGNATURE OF INSPECTOR <i>James A. Christie</i>		--	
LEGEND	CLASSIFICATION OF MATERIALS (Description)	NO. CORE RECOVERED	NO. SAMPLE TAKEN	REMARKS (Listing time, water level, depth of penetration, etc., if significant)	
	0.0' to 24.0'			1. Water table not determined.	
	CLAY, calc., moist, stiff, brown to gray and tan.			2. Jars: A. 26.0 B. 28.0 C. 30.0 D. 32.0 E. 34.0 F. 36.0	
	-- Start 6" d. bb'l. at 24.0'			NOTE: Jar samples taken from shoe of denison bb'l.	
	24.0' to 34.0'			3. Denison Cans: 1. 24.0 to 26.0 2. 26.0 to 28.0 3. 28.0 to 30.0 4. 30.0 to 32.0 5. 32.0 to 34.0 6. 34.0 to 36.0	
	CLAY, calc., moist, med. stiff to stiff, sandy to 32.0' with sand increase at 32.0', tan and gray.			4. Drilling: 1. 0.0' to 24.0' - 8" auger 2. 24.0' to 36.0' - 6" d. bb'l.	
	34.0' to 36.0'			SAND, sil. clayey, med. dense, saturated, medium to coarse grained, tan.	
	T.D. - 36.0'				

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT
Aubrey Dam Site

Hole No. 8A6D-64A

RECORD DRAWING-WORK AS BUILT

SYM	DC	NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY RAY ROBERTS LAKE					
ELM FORK, TRINITY RIVER, TEXAS					
EMBANKMENT, SPILLWAY AND					
OUTLET WORKS					
LOGS OF BORINGS					
354C-62, 3A6D-64, AND 8A6D-64A					
SUBMITTED BY			INVITATION NO. DACW63-62-B-0025 DATE MAR. 1962		
ENGINEER			CONTRACT NO. DACW63-62-C-0083		
			DRAWING NUMBER		
			SHEET NO. 25		

TO ACCOMPANY FOUNDATION REPORT

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (See Remarks)	1. CORE RECOVERY	2. CORE SAMPLE NO.	REMARKS (Drilling time, water level, depth of penetration, etc., if significant)
35.5	30.2		SAND tan, sat'd, gravelly, med to coarse gr, med dense, calc			
10.2	27.0		SHALE dk. gray, med hard (rock classification unwea, non-jointed, sl, calc 43.2 - 50.0 significantly higher to fish tail.			
87.0	87.1		SILTSTONE hard, cemented, massive			
87.1	90.2		LIMESTONE lt. gray, soft (rock classification), massive			
87.1	88.9		SHALE dk. gray, med hard, non-jointed	05.0	118	
90.2	97.3		SHALE dk. gray, med hard, non-jointed	05.5	111	
97.3	97.5		SILTSTONE hard, cemented, massive			
TD	97.5					

DRILLING LOG		INSTALLATION	
Division Southwest RN		Port North	
PROJECT Aubrey D.S.		10. HOLE AND TYPE OF BIT 8" A.C.P., 6" d. bb'l.	
1. LOCATION (Continuation of Station)		11. DATE OF INSTALLATION Falling 1900	
2. DRILLING AGENCY Coits of Engineers		12. MANUFACTURE/ESTIMATION OF DRILL Falling 1900	
3. HOLE NO. (See Remarks on Drawing) and its number 8A6D-66		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN 6	
4. NAME OF DRILLER Newhouse		14. TOTAL NUMBER CORE BORES 6	
5. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT		15. ELEVATION GROUND WATER None	
6. THICKNESS OF OVERBURDEN =		16. DATE HOLE 2 April 73	
7. DEPTH DRILLED INTO ROCK =		17. ELEVATION TOP OF HOLE 3 April 73	
8. TOTAL DEPTH OF HOLE 35.7		18. TOTAL CORE RECOVERY FOR BORING =	
9. TOTAL DEPTH OF HOLE 35.7		19. SIGNATURE OF DRILLER James L. Christie	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (See Remarks)	1. CORE RECOVERY	2. CORE SAMPLE NO.	REMARKS (Drilling time, water level, depth of penetration, etc., if significant)
0.0'	19.0'		CLAY -			1. Elevation of ground water was not determined.
0.0	3.0		0.0 to 3.0 - sli. sandy medium to stiff, moist, brown.			2. Jars: A. 24.0 B. 26.0 C. 28.0 D. 30.0 E. 32.0 F. 34.0
10.0	16.0		3.0 to 16.0 - sandy to 16.0, very sandy from 16.0 to 19.0, stiff, moist, tan.			NOTE: All jar samples taken from Denison bb'l shoe.
19.0	21.0		19.0' to 21.0' SAND, sli. clayey, medium to coarse-grained, medium dense, moist, tan.			3. Denison Cans: 1. 22.0 to 24.0 2. 24.0 to 26.0 3. 26.0 to 28.0 4. 28.0 to 30.0 5. 30.0 to 32.0 6. 32.0 to 34.0
21.0	22.0		21.0' to 22.0' CLAY, sandy, medium stiff, moist, tan.			4. Pocket penetrometer tests as follows:
22.0	24.0		22.0' to 24.0' SAND, clayey, medium dense, moist, tan.			5. No jar samples taken from 0.0 to 22.0
24.0	30.0		24.0' to 30.0' CLAY, sandy, stiff, moist, tan.			6. 0.0 to 22.0 - 24.0 22.0 to 35.7 - 6 d.r.
30.0	32.0		30.0' to 32.0' BOUNDLINE - sandy clay or clayey sand, moist, tan.			7. Bentonite drill mud used from 22.0
32.0	35.7		32.0' to 35.7' SAND, medium to coarse- grained, gravelly with gravel increase at 33.2' REFUGAL w/ d.b. 35.7'			

ENG FORM 1836
MAY 71

PREVIOUS EDITIONS ARE OBSOLETE

PROJECT
Aubrey D.S.

HOLE NO.
8A6D-66

SYM	DOC	NO	ACTION	DATE	DESCRIPTION OF REVISION
<p align="center">U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS</p>					
DESIGNED BY	<p align="center">RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS</p>				
DRAWN BY	<p align="center">EMBANKMENT, SPILLWAY AND OUTLET WORKS</p>				
REVIEWED BY	<p align="center">LOGS OF BORINGS 8A6D-65 AND 8A6D-66</p>				
SUBMITTED BY	<p>INVITATION NO DACW63-82B-0025</p>		<p>DATE MAR, 1982</p>		
ENGINEER	<p>CONTRACT NO DACW63-82 C CCH3</p>		<p>SHEET NO</p>		<p>SEQUENCE NO</p>
	<p>DRAWING NUMBER</p>		<p>OF</p>		<p>26</p>

DRILLING LOG		Division		Project		Sheet	
PROJECT		Coy. Engineers		Point North, Nevada		1 of 2 SHEETS	
1. PROJECT		2. LOCATION (County, State or Federal)		3. DATE AND TIME OF DRILLING		4. DATE AND TIME OF LOGGING	
5. DRILLING AGENCY		6. DRILLING AGENCY		7. DRILLING AGENCY		8. DRILLING AGENCY	
9. NAME OF DRILLER		10. NAME OF DRILLER		11. NAME OF DRILLER		12. NAME OF DRILLER	
13. DIRECTION OF HOLE		14. DIRECTION OF HOLE		15. DIRECTION OF HOLE		16. DIRECTION OF HOLE	
17. THICKNESS OF OVERBURDEN		18. THICKNESS OF OVERBURDEN		19. THICKNESS OF OVERBURDEN		20. THICKNESS OF OVERBURDEN	
21. DEPTH DRILLED INTO ROCK		22. DEPTH DRILLED INTO ROCK		23. DEPTH DRILLED INTO ROCK		24. DEPTH DRILLED INTO ROCK	
25. TOTAL DEPTH OF HOLE		26. TOTAL DEPTH OF HOLE		27. TOTAL DEPTH OF HOLE		28. TOTAL DEPTH OF HOLE	
ELEVATION		DEPTH		LEGEND		CLASSIFICATION OF MATERIALS	
0.0 to 33.3		CLAY -		0.0 to 3.0 medium plasticity, dark brown, medium stiff, moist		3.0 to 9.4 low to medium plasticity, brown, very moist, stiff, slightly sandy	
9.4 to 16.5 medium plasticity, dark brown, stiff, moist		16.5 to 26.5 low plasticity, dark brown, stiff to very stiff, moist, slightly sandy		26.5 to 30.5 medium plasticity, dark brown, stiff, moist		30.5 to 33.3 medium plasticity, gray and tan, very stiff, moist	
33.3 to 35.3		GRAVEL -					
ELEVATION		DEPTH		LEGEND		CLASSIFICATION OF MATERIALS	
0.0 to 29.2		CLAY -		0.0 to 6.0 medium pl dark brown, medium at stiff, moist, calcareous		6.0 to 14.6 medium pl brown, hard, moist (very stiff at 12.5)	
14.6 to 18.0 medium plasticity, light brown, stiff, moist		18.0 to 22.0 high pl brown, very stiff, very		22.0 to 28.2 medium plasticity, light brown a very n stiff to stiff moist, slightly sandy		28.2 to 29.2 low pla gray and tan, very at moist	
29.2 to 32.6		SAND -		tan, loose to medium saturated, non calcareous		32.6 to 36.0 medium plasticity, moist, stiff, and gray	
36.0 to 38.5		SAND -		tan, medium dense, slightly clayey		38.5 to 45.5	
40.5		GRAVEL -		tan, loose, saturated, sandy, becomes coarse		T. D. @ 45.5	

DRILLING LOG		Division		Project		Sheet	
PROJECT		Southwestern		Point North, Nevada		1 of 2 SHEETS	
1. PROJECT		2. LOCATION (County, State or Federal)		3. DATE AND TIME OF DRILLING		4. DATE AND TIME OF LOGGING	
5. DRILLING AGENCY		6. DRILLING AGENCY		7. DRILLING AGENCY		8. DRILLING AGENCY	
9. NAME OF DRILLER		10. NAME OF DRILLER		11. NAME OF DRILLER		12. NAME OF DRILLER	
13. DIRECTION OF HOLE		14. DIRECTION OF HOLE		15. DIRECTION OF HOLE		16. DIRECTION OF HOLE	
17. THICKNESS OF OVERBURDEN		18. THICKNESS OF OVERBURDEN		19. THICKNESS OF OVERBURDEN		20. THICKNESS OF OVERBURDEN	
21. DEPTH DRILLED INTO ROCK		22. DEPTH DRILLED INTO ROCK		23. DEPTH DRILLED INTO ROCK		24. DEPTH DRILLED INTO ROCK	
25. TOTAL DEPTH OF HOLE		26. TOTAL DEPTH OF HOLE		27. TOTAL DEPTH OF HOLE		28. TOTAL DEPTH OF HOLE	
ELEVATION		DEPTH		LEGEND		CLASSIFICATION OF MATERIALS	
0.0 to 29.2		CLAY -		0.0 to 6.0 medium pl dark brown, medium at stiff, moist, calcareous		6.0 to 14.6 medium pl brown, hard, moist (very stiff at 12.5)	
14.6 to 18.0 medium plasticity, light brown, stiff, moist		18.0 to 22.0 high pl brown, very stiff, very		22.0 to 28.2 medium plasticity, light brown a very n stiff to stiff moist, slightly sandy		28.2 to 29.2 low pla gray and tan, very at moist	
29.2 to 32.6		SAND -		tan, loose to medium saturated, non calcareous		32.6 to 36.0 medium plasticity, moist, stiff, and gray	
36.0 to 38.5		SAND -		tan, medium dense, slightly clayey		38.5 to 45.5	
40.5		GRAVEL -		tan, loose, saturated, sandy, becomes coarse		T. D. @ 45.5	

Hole No. 155-69

DRILLING LOG PROJECT: Southwestern LOCATION: Aubrey D. S. X: 2,141,610 Y: 615,020 DRILLING AGENCY: Corps of Engineers HOLE NO. (as shown on drawing sheet and log number): 0A5D-69 NAME OF DRILLER: Mullins DATE: 9 Aug 73 THICKNESS OF OVERBURDEN: 45.5' DEPTH DRILLED INTO ROCK: 0 TOTAL DEPTH OF HOLE: 45.5'		INSTALLATION HOLE SIZE AND TYPE OF BIT: 6" D Bit DATE OF ELEVATION MEASUREMENT: 15 Aug 73 MANUFACTURER'S DESIGNATION OF DRILL: Palling 1500 TOTAL NO. OF OVERBURN SAMPLES TAKEN: 20 TOTAL NUMBER CORE BORES: 16 ELEVATION GROUND WATER: 0 DATE HOLE STARTED: 9 Aug 73 DATE HOLE COMPLETED: 10 Aug 73 ELEVATION TOP OF HOLE: 560.81 TOTAL CORE RECOVERY FOR BORING: 5 SIGNATURE OF INSPECTOR: James G. Clark	
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIAL (Description)	REMARKS (Depth, time, water level, etc., if significant)
0.0 to 29.2			CLAY --	Drilling
0.0 to 6.0			sediment plasticity, dark brown, sediment stiff to stiff, moist, calcareous	0.0 to 5.0 8" sugar 5.0 to 41.0 6" D Bit 41.0 to 45.5 7 7/8" rock bit no casing
6.0 to 14.6			sediment plasticity, brown, hard, moist (becomes very stiff at 12.5)	Denison samples
14.6 to 18.0			sediment plasticity, light brown, very stiff, moist	1. 5.0 to 7.0 2. 7.0 to 9.0 3. 9.0 to 11.0 4. 11.0 to 13.0 5. 13.0 to 15.0 6. 15.0 to 17.0 7. 17.0 to 19.0 8. 19.0 to 21.0 9. 21.0 to 23.0 10. 23.0 to 25.0 11. 25.0 to 27.0 12. 27.0 to 29.0 13. 29.0 to 31.0 14. 31.0 to 33.0 15. 33.0 to 35.0 16. 35.0 to 37.0 17. 37.0 to 39.0
18.0 to 22.0			high plasticity, brown, very stiff, very moist	Notes: sand sample from 29.0 to 31.0 and gravel sample from 39.0 to 41.0 were disturbed.
22.0 to 28.2			sediment plasticity, light brown and gray, very stiff to stiff, moist, slightly sandy	J-- samples
28.2 to 29.2			low plasticity, gray and tan, very stiff, moist	A. 0.0 to 3.0 B. 3.0 to 5.0 C. 7.0 D. 9.0 E. 11.0 F. 13.0 G. 15.0 H. 17.0 I. 19.0 J. 21.0 K. 23.0 L. 25.0 M. 27.0 N. 29.0 O. 31.0 P. 33.0 Q. 35.0 R. 37.0 S. 39.0 T. 41.0
29.2 to 32.6			SAND --	
			tan, loose to medium dense, saturated, non calcareous	
32.6 to 36.0			CLAY --	
			32.6 to 34.5 sediment plasticity, moist, stiff, tan and gray	Notes: samples C through T obtained from above of Denison barrel.
34.0 to 36.0			low plasticity, tan and gray, soft to medium stiff, saturated, sandy	
36.0 to 38.5			SAND --	
			tan, medium dense, saturated, slightly clayey	
38.5 to 45.5			GRAVEL --	
			tan, loose, saturated, sandy, becomes coarse at 40.5'	
			T. D. @ 45.5	

Hole No. 155-69

DRILLING LOG PROJECT: Southwestern LOCATION: Aubrey D. S. X: 2,140,155 Y: 614,685 DRILLING AGENCY: Corps of Engineers HOLE NO. (as shown on drawing sheet and log number): 0A5D-69 NAME OF DRILLER: Mullins DATE: 15 Aug 73 THICKNESS OF OVERBURDEN: 43.0 DEPTH DRILLED INTO ROCK: 1.0 TOTAL DEPTH OF HOLE: 44.0		INSTALLATION HOLE SIZE AND TYPE OF BIT: 6" D Bit DATE OF ELEVATION MEASUREMENT: 15 Aug 73 MANUFACTURER'S DESIGNATION OF DRILL: Palling 1500 TOTAL NO. OF OVERBURN SAMPLES TAKEN: 16 TOTAL NUMBER CORE BORES: 16 ELEVATION GROUND WATER: 0 DATE HOLE STARTED: 15 Aug 73 DATE HOLE COMPLETED: 15 Aug 73 ELEVATION TOP OF HOLE: 557.5 TOTAL CORE RECOVERY FOR BORING: 5 SIGNATURE OF INSPECTOR: James G. Clark	
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIAL (Description)	REMARKS (Depth, time, water level, etc., if significant)
0.0 to 32.0			CLAY --	Drilling
0.0 to 4.5			medium plasticity, brownish-gray, stiff, slightly moist	0.0 to 15.0 8" sugar 15.0 to 37.0 6" D Bit 37.0 to 44.0 7 7/8" rock bit no casing
4.5 to 11.0			low to medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles 5.2 to 11.0	Denison samples
11.0 to 20.0			high plasticity, light brown, moist to very moist, stiff	1. 0.0 to 3.0 2. 3.0 to 5.0 3. 7.0 4. 9.0 5. 11.0 6. 13.0 7. 15.0 8. 17.0 9. 19.0 10. 21.0 11. 23.0 12. 25.0 13. 27.0 14. 29.0 15. 31.0 16. 33.0 17. 35.0 18. 37.0 19. 39.0 20. 41.0
20.0 to 22.0			high plasticity, light brown, medium stiff, very moist to saturated	
22.0 to 28.0			medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles and a few small shells	
28.0 to 30.0			medium plasticity, tan, stiff, very moist, slightly sandy	
30.0 to 32.0			low plasticity, tan, saturated, stiff, sandy	
32.0 to 43.0			SAND --	
			32.0 to 34.0 tan, medium dense, clayey, saturated	
			34.0 to 36.5 tan, loose, saturated, gravelly	
			36.5 to 43.0 with coarse gravel	
43.0 to 44.0			SHALE --	
			dark gray, medium hard (rock classification), unweathered, non-jointed, moist	

DRILLING LOG		Division		Installation		Hole No. 8A6D-69	
PROJECT		Southwestern		Fort North Matr		SHEET 1 OF 2 SHEETS	
1. PROJECT		2. LOCATION (Coordinates or Street)		3. DATE AND TIME OF DAY		4. DATE AND TIME OF DAY	
Aubrey D. S.		X-2, 140, 155 Y-614, 685		15 JUL 73		16 AUG 73	
5. DRILLING AGENT		6. HOLE NO. (As shown on drawing sheet)		7. HOLE NO. (As shown on drawing sheet)		8. HOLE NO. (As shown on drawing sheet)	
Corps of Engineers		8A6D-69		8A6D-69		8A6D-69	
9. NAME OF DRILLER		10. NAME OF DRILLER		11. NAME OF DRILLER		12. NAME OF DRILLER	
Willing		Willing		Willing		Willing	
13. DIRECTION OF HOLE		14. DIRECTION OF HOLE		15. DIRECTION OF HOLE		16. DIRECTION OF HOLE	
VERTICAL		VERTICAL		VERTICAL		VERTICAL	
17. THICKNESS OF OVERBURDEN		18. DEPTH DRILLED INTO ROCK		19. TOTAL DEPTH OF HOLE		20. TOTAL DEPTH OF HOLE	
45.0		1.0		44.0		44.0	
21. CLASSIFICATION OF MATERIAL		22. CLASSIFICATION OF MATERIAL		23. CLASSIFICATION OF MATERIAL		24. CLASSIFICATION OF MATERIAL	
CLAY --		CLAY --		CLAY --		CLAY --	
0.0 to 4.5 medium plasticity, brownish-gray, stiff, slightly moist		0.0 to 4.5 medium plasticity, brownish-gray, stiff, slightly moist		0.0 to 4.5 medium plasticity, brownish-gray, stiff, slightly moist		0.0 to 4.5 medium plasticity, brownish-gray, stiff, slightly moist	
4.5 to 11.0 low to medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles 5.2 to 11.0		4.5 to 11.0 low to medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles 5.2 to 11.0		4.5 to 11.0 low to medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles 5.2 to 11.0		4.5 to 11.0 low to medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles 5.2 to 11.0	
11.0 to 20.0 high plasticity, light brown, moist to very moist, stiff		11.0 to 20.0 high plasticity, light brown, moist to very moist, stiff		11.0 to 20.0 high plasticity, light brown, moist to very moist, stiff		11.0 to 20.0 high plasticity, light brown, moist to very moist, stiff	
20.0 to 22.0 high plasticity, light brown, medium stiff, very moist to saturated		20.0 to 22.0 high plasticity, light brown, medium stiff, very moist to saturated		20.0 to 22.0 high plasticity, light brown, medium stiff, very moist to saturated		20.0 to 22.0 high plasticity, light brown, medium stiff, very moist to saturated	
22.0 to 28.0 medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles and a few small shells		22.0 to 28.0 medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles and a few small shells		22.0 to 28.0 medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles and a few small shells		22.0 to 28.0 medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles and a few small shells	
28.0 to 30.0 medium plasticity, tan, stiff, very moist, slightly sandy		28.0 to 30.0 medium plasticity, tan, stiff, very moist, slightly sandy		28.0 to 30.0 medium plasticity, tan, stiff, very moist, slightly sandy		28.0 to 30.0 medium plasticity, tan, stiff, very moist, slightly sandy	
30.0 to 32.0 low plasticity, tan, saturated, stiff, sandy		30.0 to 32.0 low plasticity, tan, saturated, stiff, sandy		30.0 to 32.0 low plasticity, tan, saturated, stiff, sandy		30.0 to 32.0 low plasticity, tan, saturated, stiff, sandy	
32.0 to 43.0		32.0 to 43.0		32.0 to 43.0		32.0 to 43.0	
SAND --		SAND --		SAND --		SAND --	
32.0 to 34.0 tan, medium dense, clayey, saturated		32.0 to 34.0 tan, medium dense, clayey, saturated		32.0 to 34.0 tan, medium dense, clayey, saturated		32.0 to 34.0 tan, medium dense, clayey, saturated	
34.0 to 36.5 tan, loose, saturated, gravelly		34.0 to 36.5 tan, loose, saturated, gravelly		34.0 to 36.5 tan, loose, saturated, gravelly		34.0 to 36.5 tan, loose, saturated, gravelly	
36.5 to 43.0 with coarse gravel		36.5 to 43.0 with coarse gravel		36.5 to 43.0 with coarse gravel		36.5 to 43.0 with coarse gravel	
43.0 to 44.0		43.0 to 44.0		43.0 to 44.0		43.0 to 44.0	
SHALE --		SHALE --		SHALE --		SHALE --	
dark gray, medium hard (rock classification), unweathered, non-jointed, moist		dark gray, medium hard (rock classification), unweathered, non-jointed, moist		dark gray, medium hard (rock classification), unweathered, non-jointed, moist		dark gray, medium hard (rock classification), unweathered, non-jointed, moist	

RECORD DRAWING-WORK AS BUILT

SYM		NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY:		RAY ROBERTS LAKE			
DRAWN BY:		ELM FORK, TRINITY RIVER, TEXAS			
REVIEWED BY:		EMBANKMENT, SPILLWAY AND OUTLET WORKS			
SUBMITTED BY:		LOGS OF BORINGS			
ENGINEER:		8A6D-67, 8A6D-68, AND 8A6D-69			
INVITATION NO. DACW 63-82-C-0025		DATE: MAR 1982		SEQUENCE NO. 27	
CONTRACT NO. DACW 63-82-C-0083		DRAWING NUMBER		SHEET NO.	

Drilling Log Form (Left Page)

State No. 81-70

PROJECT: **Southwestern**

LOCATION: **2,140,700** **Y 615,945**

DRILLING AGENCY: **Corps of Engineers**

NAME OF DRILLER: **Mullins**

DATE MOLE: **14 AUG 73**

THICKNESS OF OVERBURDEN: **39.2**

DEPTH DRILLED INTO ROCK: **0.5**

TOTAL DEPTH OF MOLE: **40.0**

ELEVATION: **561.0'**

CLASSIFICATION OF MATERIALS (Depth in feet):

- 0.0 to 29.0: **CLAY --**
 - 0.0 to 5.0 medium plasticity, dark brown, medium stiff, slightly moist
 - 5.0 to 10.8 medium plasticity, brown, stiff, moist, with some calcareous particles
 - 10.8 to 27.0 high plasticity, brown, stiff to very stiff moist
- 27.0 to 28.0 medium plasticity, tan, medium stiff to stiff, very moist, slightly sandy
- 28.0 to 29.0 low plasticity, tan, medium stiff, saturated, sandy
- 29.0 to 33.0: **SAND --**
 - tan, loose, saturated, becomes slightly gravelly
- 33.0 to 34.0: **CLAY --**
 - medium to high plasticity, brown, stiff, moist, slightly gravelly
- 34.0 to 35.0: **GRAVEL --**
 - tan, loose, saturated, poorly graded
- 35.0 to 39.2: **CLAY --**
 - 35.0 to 38.0 medium plasticity, brown and gray, stiff, moist
 - 38.0 to 39.2 low plasticity, brown, medium stiff, saturated, sandy and gravelly
- 39.2 to 40.0: **SHALE --**
 - dark gray medium hard (rock classification), unweathered, non-jointed, non- to slightly calcareous

REMARKS: **Drilling 0.0 to 40.0 8" auger no casing**

Jar samples

- A. 0.0 to 5.0
- B. 5.0 to 10.8
- C. 10.8 to 12.0
- D. 12.0 to 16.8
- E. 16.8 to 21.8
- F. 21.8 to 27.0
- G. 27.0 to 28.0
- H. 28.0 to 29.0
- I. 29.0 to 31.0
- J. 31.0 to 33.0
- K. 33.0 to 34.0
- L. 34.0 to 35.0
- M. 35.0 to 38.0
- N. 38.0 to 39.2
- O. 39.2 to 40.0

Note

All overburden material are calcareous

***Water table**

Drilling mud not used and hole not bailed. 4" slotted plastic pipe set to 33.0'. At completion of drilling, water level standing at 24.1'. Other water table information reported on supplemental sheet.

T. D. @ 40.0

Drilling Log Form (Right Page)

PROJECT: **Southwestern**

LOCATION: **2,140,700** **Y 615,945**

DRILLING AGENCY: **Corps of Engineers**

NAME OF DRILLER: **Mullins**

DATE MOLE: **14 AUG 73**

THICKNESS OF OVERBURDEN: **45.5'**

DEPTH DRILLED INTO ROCK: **0.5'**

TOTAL DEPTH OF MOLE: **46.0'**

ELEVATION: **561.0'**

CLASSIFICATION OF MATERIALS (Depth in feet):

- 0.0 to 30.5: **CLAY --**
 - 0.0 to 6.5 medium plasticity, brown, medium stiff (becomes stiff at 4.0), slightly moist
 - 6.5 to 11.5 low plasticity, light brown, very stiff, slightly sandy
 - 11.5 to 16.5 medium plasticity, light brown, stiff, moist
 - 16.5 to 29.6 medium to high plasticity, brown, stiff, moist
- 29.6 to 30.5 low plasticity, tan, stiff, saturated, sandy, very slightly gravelly
- 30.5 to 31.7: **SAND --**
 - tan, loose, saturated, coarse, gravelly
- 31.7 to 37.0: **CLAY --**
 - 31.7 to 32.5 high plasticity, gray and tan mottled, medium stiff, very moist, calcareous
 - 32.5 to 37.0 high plasticity, grayish-brown, soft to medium stiff, very moist to saturated. Becomes slightly sandy at 35.0
- 37.0 to 45.5: **GRAVEL --**
 - tan, loose, saturated, clayey, with some shales and small cobbles. Becomes very clayey at 42.0'

Drilling Log Form 1836 (Southwestern)

Project: **Southwestern** Installation: **Port North District** Sheet: **1** of **2** sheets

1. PROJECT: **Southwestern**

2. LOCATION (Continuation of Form 1836): **Port North District**

3. DRILLING AGENCY: **Corps of Engineers**

4. NAME OF DRILLER: **Hullins**

5. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED (Specify from vert.)

6. THICKNESS OF OVERBURDEN: **45.5'**

7. DEPTH DRILLED INTO ROCK: **0.5'**

8. TOTAL DEPTH OF HOLE: **46.0'**

9. DATE HOLE: **13 Aug 73** (Started) **14 Aug 73** (Completed)

10. ELEVATION TOP OF HOLE: **560.0'**

11. ELEVATION GROUND WATER: **560.0'**

12. TOTAL CORE RECOVERY FOR BORING: **60%**

13. REMARKS: **Drilling**

14. CLASSIFICATION OF MATERIALS (Descriptive):

0.0 to 30.5
CLAY --
0.0 to 6.5 medium plasticity, brown, medium stiff (becomes stiff at 4.0), slightly moist.
6.5 to 11.5 low plasticity, light brown, very stiff, slightly sandy.
11.5 to 16.5 medium plasticity, light brown, stiff, moist.
16.5 to 29.6 medium to high plasticity, brown, stiff, moist.

29.6 to 30.5 low plasticity, tan, stiff, saturated, sandy, very slightly gravelly.

30.5 to 31.7
SAND --
tan, loose, saturated, coarse, gravelly.

31.7 to 37.0
CLAY --

37.0 to 45.5
GRAVEL --
tan, loose, saturated, clayey, with some shells and small cobbles. Becomes very clayey at 42.0'.

15. CORE SAMPLE NO. (See Remarks for details)

16. REMARKS (Continuation of Form 1836):

0.0 to 43.0 8" auger
43.0 to 46.0 7 7/8" rockbit

Var samples

A. 0.0 to 4.0
B. 4.0 to 6.5
C. 6.5 to 11.5
D. 11.5 to 16.5
E. 16.5 to 20.5
F. 20.5 to 25.5
G. 25.5 to 29.6
H. 29.6 to 30.5
I. 30.5 to 31.7
J. 31.7 to 32.5
K. 32.5 to 37.0
L. 37.0 to 42.0
M. 42.0 to 45.5

Notes

All materials are calcareous.

*Water table

Because of squeezing, hole was bailed only to 16.0' slotted, plastic set to 39.2'. Measurements reported on supplemental sheet.

Carton sample

1. 26.7 to 27.6

Notes

Overburden is non-calcareous. Hole elevation is 571.0' 8" casing to 24.0'.

2. D. @ 46.0

Drilling Log Form 1836 (Southwestern)

Project: **Southwestern** Installation: **Port North District** Sheet: **2** of **2** sheets

1. PROJECT: **Southwestern**

2. LOCATION (Continuation of Form 1836): **Port North District**

3. DRILLING AGENCY: **Corps of Engineers**

4. NAME OF DRILLER: **Hullins**

5. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED (Specify from vert.)

6. THICKNESS OF OVERBURDEN: **21.0'**

7. DEPTH DRILLED INTO ROCK: **7.0'**

8. TOTAL DEPTH OF HOLE: **28.0'**

9. DATE HOLE: **17 Aug 73** (Started) **21 Aug 73** (Completed)

10. ELEVATION TOP OF HOLE: **570.4'**

11. ELEVATION GROUND WATER: **570.4'**

12. TOTAL CORE RECOVERY FOR BORING: **60%**

13. REMARKS: **Drilling**

14. CLASSIFICATION OF MATERIALS (Descriptive):

0.0 to 4.0
CLAY --
medium plasticity, brown, very stiff, slightly moist, slightly sandy.

4.0 to 20.0
SAND --
4.0 to 11.0 tan, medium dense, moist, fine, clayey; becomes silty at 10.0.
11.0 to 12.5 tan, medium dense, moist, silty, with small ironstone nodules.
12.5 to 15.0 tan and gray, loose, saturated, with ironstone.
15.0 to 17.0 gray, loose, saturated, silty.
17.0 to 20.0 tan, loose, saturated, silty.

20.0 to 21.0
GRAVEL --
tan, loose, saturated, sandy, with cobbles up to 4" diameter.

21.0 to 21.2
SILTSTONE --
light gray, hard (rock classification), massive.

21.2 to 28.0
SHALES --
light gray, non-weathered, moderately hard (rock classification), laminated, non-jointed.

T. D. @ 28.0

15. CORE SAMPLE NO. (See Remarks for details)

16. REMARKS (Continuation of Form 1836):

0.0 to 43.0 8" auger
43.0 to 46.0 7 7/8" rockbit

Var samples

A. 0.0 to 4.0
B. 4.0 to 10.0
C. 10.0 to 11.0
D. 11.0 to 12.5
E. 12.5 to 15.0
F. 15.0 to 17.0
G. 17.0 to 20.0
H. 20.0 to 21.0

Notes

Hole offset 16.0' S40°W from staked location of X-2138,510 and Y-614,460.

*Water table

4" slotted plastic pipe installed to 18.5' hole bailed to 23.0'. Readings reported on supplemental sheet.

Drilling

0.0 to 24.0 8" auger
24.0 to 28.0 6" core

Var samples

A. 0.0 to 4.0
B. 4.0 to 10.0
C. 10.0 to 11.0
D. 11.0 to 12.5
E. 12.5 to 15.0
F. 15.0 to 17.0
G. 17.0 to 20.0
H. 20.0 to 21.0

Carton sample

1. 26.7 to 27.6

Notes

Overburden is non-calcareous. Hole elevation is 571.0' 8" casing to 24.0'.

2. D. @ 46.0

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: **Southwestern**

DRILLER: **Hullins**

Hole No. 8A6C-72
 Project: Fort Worth District
 Location: 2,138,830 X, 614,570 Y
 Date: 17 Aug 73
 Elevation: 570.4
 Classification of Material: CLAY, SAND, GRAVEL, SILTSTONE, SHALES
 Remarks: Location, Water table, Drilling, Jar samples, Carton sample, Note

Hole No. 8A6C-73
 Project: Fort Worth District
 Location: 2,138,830 X, 614,570 Y
 Date: 17 Aug 73
 Elevation: 560.4
 Classification of Material: CLAY, SAND, GRAVEL, SILTSTONE, SHALES
 Remarks: Drilling, Jar samples, Carton sample, Water table

RECORD DRAWING-WORK AS BUILT

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
 CORPS OF ENGINEERS
 FORT WORTH, TEXAS
 DESIGNED BY: RAY ROBERTS LAKE
 ELIM FORK, TRINITY RIVER, TEXAS
 EMBANKMENT, SPILLWAY AND
 OUTLET WORKS
 LOGS OF BORINGS
 8A-70, 8A-71, 8A6C-72, AND 8A6C-73
 INVITATION NO. DACW63-82-C-0025 DATE MAR, 1982
 CONTRACT NO. DACW63-82-C-0083
 DRAWING NUMBER: 28

TO ACCOMPANY FOUNDATION REPORT

Hole No. D160-75

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		2. LOCATION		3. DATE		4. SHEETS	
Aubrey D. S.		Fort Worth District		21 Aug 73		1 of 1	
5. DRILLING AGENCY		6. DRILLING AGENCY		7. DRILLING AGENCY		8. DRILLING AGENCY	
Cops of Engineers		Cops of Engineers		Cops of Engineers		Cops of Engineers	
9. HOLE NO. (As shown on drawing sheet and file number)		10. HOLE NO. (As shown on drawing sheet and file number)		11. HOLE NO. (As shown on drawing sheet and file number)		12. HOLE NO. (As shown on drawing sheet and file number)	
B160-75		B160-75		B160-75		B160-75	
13. NAME OF DRILLER		14. NAME OF DRILLER		15. NAME OF DRILLER		16. NAME OF DRILLER	
Newhouse		Newhouse		Newhouse		Newhouse	
17. DIRECTION OF HOLE		18. DIRECTION OF HOLE		19. DIRECTION OF HOLE		20. DIRECTION OF HOLE	
VERTICAL		VERTICAL		VERTICAL		VERTICAL	
21. THICKNESS OF OVERBURDEN		22. THICKNESS OF OVERBURDEN		23. THICKNESS OF OVERBURDEN		24. THICKNESS OF OVERBURDEN	
3.5		3.5		3.5		3.5	
25. DEPTH DRILLED INTO ROCK		26. DEPTH DRILLED INTO ROCK		27. DEPTH DRILLED INTO ROCK		28. DEPTH DRILLED INTO ROCK	
5.6		5.6		5.6		5.6	
29. TOTAL DEPTH OF HOLE		30. TOTAL DEPTH OF HOLE		31. TOTAL DEPTH OF HOLE		32. TOTAL DEPTH OF HOLE	
9.1		9.1		9.1		9.1	
33. ELEVATION		34. ELEVATION		35. ELEVATION		36. ELEVATION	
10		10		10		10	
37. CLASSIFICATION OF MATERIALS		38. CLASSIFICATION OF MATERIALS		39. CLASSIFICATION OF MATERIALS		40. CLASSIFICATION OF MATERIALS	
0.0 to 3.5		0.0 to 3.5		0.0 to 3.5		0.0 to 3.5	
CLAY --		CLAY --		CLAY --		CLAY --	
0.0 to 2.5 medium plasticity, dark brown, stiff to very stiff, slightly moist		0.0 to 2.5 medium plasticity, dark brown, stiff to very stiff, slightly moist		0.0 to 2.5 medium plasticity, dark brown, stiff to very stiff, slightly moist		0.0 to 2.5 medium plasticity, dark brown, stiff to very stiff, slightly moist	
2.5 to 3.5 low plasticity, brown, stiff, moist, slightly sandy; gravelly from 3.3 to 3.5		2.5 to 3.5 low plasticity, brown, stiff, moist, slightly sandy; gravelly from 3.3 to 3.5		2.5 to 3.5 low plasticity, brown, stiff, moist, slightly sandy; gravelly from 3.3 to 3.5		2.5 to 3.5 low plasticity, brown, stiff, moist, slightly sandy; gravelly from 3.3 to 3.5	
3.5 to 7.9		3.5 to 7.9		3.5 to 7.9		3.5 to 7.9	
LIMESTONE --		LIMESTONE --		LIMESTONE --		LIMESTONE --	
hard (rock classification), well cemented, light gray, massive		hard (rock classification), well cemented, light gray, massive		hard (rock classification), well cemented, light gray, massive		hard (rock classification), well cemented, light gray, massive	
7.9 to 9.1		7.9 to 9.1		7.9 to 9.1		7.9 to 9.1	
SHALE --		SHALE --		SHALE --		SHALE --	
gray and tan, moderately hard, non-jointed, non-calcareous		gray and tan, moderately hard, non-jointed, non-calcareous		gray and tan, moderately hard, non-jointed, non-calcareous		gray and tan, moderately hard, non-jointed, non-calcareous	
T. D. 0 9.1		T. D. 0 9.1		T. D. 0 9.1		T. D. 0 9.1	

Hole No. D160-75

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		2. LOCATION		3. DATE		4. SHEETS	
Aubrey D. S.		Fort Worth District		21 Aug 73		1 of 1	
5. DRILLING AGENCY		6. DRILLING AGENCY		7. DRILLING AGENCY		8. DRILLING AGENCY	
Cops of Engineers		Cops of Engineers		Cops of Engineers		Cops of Engineers	
9. HOLE NO. (As shown on drawing sheet and file number)		10. HOLE NO. (As shown on drawing sheet and file number)		11. HOLE NO. (As shown on drawing sheet and file number)		12. HOLE NO. (As shown on drawing sheet and file number)	
B160-75		B160-75		B160-75		B160-75	
13. NAME OF DRILLER		14. NAME OF DRILLER		15. NAME OF DRILLER		16. NAME OF DRILLER	
Newhouse		Newhouse		Newhouse		Newhouse	
17. DIRECTION OF HOLE		18. DIRECTION OF HOLE		19. DIRECTION OF HOLE		20. DIRECTION OF HOLE	
VERTICAL		VERTICAL		VERTICAL		VERTICAL	
21. THICKNESS OF OVERBURDEN		22. THICKNESS OF OVERBURDEN		23. THICKNESS OF OVERBURDEN		24. THICKNESS OF OVERBURDEN	
12.0		12.0		12.0		12.0	
25. DEPTH DRILLED INTO ROCK		26. DEPTH DRILLED INTO ROCK		27. DEPTH DRILLED INTO ROCK		28. DEPTH DRILLED INTO ROCK	
80.8		80.8		80.8		80.8	
29. TOTAL DEPTH OF HOLE		30. TOTAL DEPTH OF HOLE		31. TOTAL DEPTH OF HOLE		32. TOTAL DEPTH OF HOLE	
92.8		92.8		92.8		92.8	
33. ELEVATION		34. ELEVATION		35. ELEVATION		36. ELEVATION	
10		10		10		10	
37. CLASSIFICATION OF MATERIALS		38. CLASSIFICATION OF MATERIALS		39. CLASSIFICATION OF MATERIALS		40. CLASSIFICATION OF MATERIALS	
0.0 to 39.5'		0.0 to 39.5'		0.0 to 39.5'		0.0 to 39.5'	
NO SAMPLES TAKEN		NO SAMPLES TAKEN		NO SAMPLES TAKEN		NO SAMPLES TAKEN	

Hole No. D160-75

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		2. LOCATION		3. DATE		4. SHEETS	
Aubrey D. S.		Fort Worth District		21 Aug 73		1 of 1	
5. DRILLING AGENCY		6. DRILLING AGENCY		7. DRILLING AGENCY		8. DRILLING AGENCY	
Cops of Engineers		Cops of Engineers		Cops of Engineers		Cops of Engineers	
9. HOLE NO. (As shown on drawing sheet and file number)		10. HOLE NO. (As shown on drawing sheet and file number)		11. HOLE NO. (As shown on drawing sheet and file number)		12. HOLE NO. (As shown on drawing sheet and file number)	
B160-75		B160-75		B160-75		B160-75	
13. NAME OF DRILLER		14. NAME OF DRILLER		15. NAME OF DRILLER		16. NAME OF DRILLER	
Newhouse		Newhouse		Newhouse		Newhouse	
17. DIRECTION OF HOLE		18. DIRECTION OF HOLE		19. DIRECTION OF HOLE		20. DIRECTION OF HOLE	
VERTICAL		VERTICAL		VERTICAL		VERTICAL	
21. THICKNESS OF OVERBURDEN		22. THICKNESS OF OVERBURDEN		23. THICKNESS OF OVERBURDEN		24. THICKNESS OF OVERBURDEN	
5.5		5.5		5.5		5.5	
25. DEPTH DRILLED INTO ROCK		26. DEPTH DRILLED INTO ROCK		27. DEPTH DRILLED INTO ROCK		28. DEPTH DRILLED INTO ROCK	
0		0		0		0	
29. TOTAL DEPTH OF HOLE		30. TOTAL DEPTH OF HOLE		31. TOTAL DEPTH OF HOLE		32. TOTAL DEPTH OF HOLE	
5.5		5.5		5.5		5.5	
33. ELEVATION		34. ELEVATION		35. ELEVATION		36. ELEVATION	
10		10		10		10	
37. CLASSIFICATION OF MATERIALS		38. CLASSIFICATION OF MATERIALS		39. CLASSIFICATION OF MATERIALS		40. CLASSIFICATION OF MATERIALS	
0.0 to 5.5		0.0 to 5.5		0.0 to 5.5		0.0 to 5.5	
CLAY --		CLAY --		CLAY --		CLAY --	
0.0 to 4.0 medium plasticity, dark brown, stiff to very stiff, slightly moist		0.0 to 4.0 medium plasticity, dark brown, stiff to very stiff, slightly moist		0.0 to 4.0 medium plasticity, dark brown, stiff to very stiff, slightly moist		0.0 to 4.0 medium plasticity, dark brown, stiff to very stiff, slightly moist	
4.0 to 5.5 becomes light brown, moist		4.0 to 5.5 becomes light brown, moist		4.0 to 5.5 becomes light brown, moist		4.0 to 5.5 becomes light brown, moist	
5.5		5.5		5.5		5.5	
LIMESTONE --		LIMESTONE --		LIMESTONE --		LIMESTONE --	
hard (rock classification), well cemented, light gray, massive		hard (rock classification), well cemented, light gray, massive		hard (rock classification), well cemented, light gray, massive		hard (rock classification), well cemented, light gray, massive	
T. D. 0 5.5		T. D. 0 5.5		T. D. 0 5.5		T. D. 0 5.5	

RECORD DRAWING-WORK AS BUILT

~~TO ACCOMPANY FOUNDATION REPORT~~

Wells No. 8165-01

DRILLING LOG Southwestern

PROJECT Aubrey Lake

LOCATION (County, State or District)

DATE OF LOG 1950

WELL NO. 8165-01

WELL DEPTH 82.0'

WELL ELEVATION 621.3'

WELL DIRECTION OF DRILLING

WELL THICKNESS OF OVERBURDEN 4.0'

WELL DEPTH DRILLED INTO ROCK 82.0'

WELL TOTAL DEPTH OF HOLE 86.0'

WELL DATE HOLE 7 JAN 75

WELL ELEVATION TOP OF HOLE 621.3'

WELL TOTAL CORE RECOVERY FOR BORING 90%

WELL SIGNATURE OF INSPECTOR

WELL REMARKS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	WELL NO.	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0' to 4.0'			SAND --		7	Drilling
4.0' to 33.5'			SAND (primary) --		8	Jar sample
33.5' to 43.8'			red, massive, weathered, fine-grained, with some ironstone concretions and zones slightly clayey		9	Carbon samples
43.8' to 45.3'			4.0' to 16.3' non-cemented		10	
45.3' to 47.8'			16.3' to 24.5' poorly cemented		11	
47.8' to 49.3'			24.5' to 27.3' non-cemented		12	
49.3' to 51.8'			27.3' to 29.0' poorly cemented		13	
51.8' to 54.3'			29.0' to 33.5' non-cemented, slightly clayey, becoming very clayey at base		14	
54.3' to 56.8'			33.5' to 43.8'		15	
56.8' to 59.3'			SHALE --		16	
59.3' to 61.8'			light gray, moderately weathered, massive, non-calcareous, easy to drill, 4.25' to 4.5' on hand penetrometer down 35.0' and 74.5 below 35.0'		17	
61.8' to 64.3'			sandy, to very sandy, with		18	

Wells No. 8165-01

DRILLING LOG SFD

PROJECT Aubrey Lake

LOCATION (County, State or District)

DATE OF LOG 1950

WELL NO. 8165-01

WELL DEPTH 82.0'

WELL ELEVATION 621.3'

WELL DIRECTION OF DRILLING

WELL THICKNESS OF OVERBURDEN 4.0'

WELL DEPTH DRILLED INTO ROCK 82.0'

WELL TOTAL DEPTH OF HOLE 86.0'

WELL DATE HOLE 7 JAN 75

WELL ELEVATION TOP OF HOLE 621.3'

WELL TOTAL CORE RECOVERY FOR BORING 90%

WELL SIGNATURE OF INSPECTOR

WELL REMARKS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	WELL NO.	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0' to 4.0'			occasional pockets of tan sand; with numerous short, irregular, tight, iron-stained, high angle, tight joint		19	
4.0' to 33.5'			32.5' to 34.8' black, iron-stained, high angle, tight joint		20	
33.5' to 43.8'			44.4' to 46.8' badly jointed and very sandy; completely broken up with handling		21	
43.8' to 45.3'			48.0' to 48.3' ironstone, red, soft		22	
45.3' to 47.8'			48.3' to 65.4'		23	
47.8' to 49.3'			SHALE --		24	
49.3' to 51.8'			48.3' to 55.0' tan and light gray, slightly weathered, massive, calcareous		25	
51.8' to 54.3'			55.0' to 65.4' light gray, non-weathered, thin-bedded, very calcareous; slightly fossiliferous in lower 0.1'		26	
54.3' to 56.8'			65.4' to 79.2'		27	
56.8' to 59.3'			LIMESTONE --		28	
59.3' to 61.8'			65.4' to 72.7' gradational with above unit, light gray, argillaceous, with numerous lenses of gray shale; moderately well cemented		29	
61.8' to 64.3'			72.7' to 78.6' well cemented with occasional lenses of shale, light gray		30	
64.3' to 66.8'			78.6' to 79.2' transition with unit below		31	
66.8' to 69.3'			79.2' to		32	
69.3' to 71.8'			SHALE --		33	
71.8' to 74.3'			dark gray, non-calcareous, thin-bedded, non-fractured, non-jointed, with numerous sandy lenses and lenses of fine, poorly cemented, thin-bedded to cross-bedded sandstone; contains scattered shells which tend to be concentrated along bedding planes		34	
74.3' to 76.8'			sandstone at 80.7' to 81.0'		35	
76.8' to 79.3'			81.7' to 82.0'; 82.3' to 85.7' to 86.0'		36	
79.3' to 81.8'			siltstone, brownish-gray, well cemented at 79.6'		37	
81.8' to 84.3'			85.2'		38	

Hole No. 816C-84

INSTALLATION	FWD	SHEET 2 OF 3 SHEETS
10 SIZE AND TYPE OF BIT	11 DATE FOR ELEVATION INFORMATION (BY MSL)	
12 MANUFACTURER'S DESIGNATION OF DRILL		
13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	14 TOTAL NUMBER CORE BOXES	15 ELEVATION GROUND WATER
16 DATE HOLE	17 ELEVATION TOP OF HOLE	18 TOTAL CORE RECOVERY FOR BORING
19 SIGNATURE OF INSPECTOR		

DESCRIPTION OF MATERIALS (See Remarks)	SCORE RECOVERY (%)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
1 pockets of tan h numerous short, tight, iron-stained joints, none open upon handling	41.0	7	
34.8' black, iron high angle, tight	45.0	8	
46.8' badly jointed sandy; completely with handling	49.0	9	
48.3' ironstone, 0.2	53.0	10	
55.0' tan and y, slightly weathered, calcareous	57.0	11	
65.4' light gray weathered, thin, very calcareous; fossiliferous in	61.0	12	
72.7' gradational unit, light gray, with numerous gray shale; reddish cemented	68.3	13	
78.6' well cemented lenses of gray	74.3	14	
79.2' transitional below	78.6	15	
80.7' to 81.0'	83.3	16	
82.0' to 82.6'	85.0	17	
86.0'		18	
87.6' brownish-gray, noted at 79.6'		19	

Hole No. 816C-85

INSTALLATION	So. threastern	SHEET 1 OF 2 SHEETS
10 SIZE AND TYPE OF BIT	11 DATE FOR ELEVATION INFORMATION (BY MSL)	
12 MANUFACTURER'S DESIGNATION OF DRILL		
13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	14 TOTAL NUMBER CORE BOXES	15 ELEVATION GROUND WATER
16 DATE HOLE	17 ELEVATION TOP OF HOLE	18 TOTAL CORE RECOVERY FOR BORING
19 SIGNATURE OF INSPECTOR		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SCORE RECOVERY (%)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	3.5'		SAND --			
3.5'	25.6'		SAND (primary) --			
25.6'	45.0'		6.0' to 8.6' reddish-brown, poorly cemented, with concretions, very difficult to auger			
45.0'	55.0'		8.6' to 14.2' reddish-brown, non-cemented, massive, very moist, non-calcareous, with scattered small ironstone concretions, carbonaceous inclusions, and decayed roots			
55.0'	65.4'		14.2' to 25.6' becomes light gray with reddish-brown and yellowish-brown clayey, with some carbonaceous matter and occasional thin veins of selenite			
65.4'	72.7'		18.0' to 19.8' CLAY, predominantly gray, sandy, with pockets of yellowish-brown clayey sand			
72.7'	78.6'		19.8' to 25.6' borderline clay, gray, massive with lenses of clayey sand and sandy clay			
78.6'	80.7'		25.6' to 45.0' SHALE --			
80.7'	82.0'		25.6' to 26.7' dark purple, sandy, massive, with ironstone nodules			
82.0'	86.0'		26.7' to 28.6' light gray and gray, slightly weathered, approximately 4.0 on hand			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION
0.0'	3.5'		penetrating, not-cemented, and no
3.5'	25.6'		28.6' to 33.0' calcareous, penetr
25.6'	45.0'		33.0' to 45.0' clay, cemented, placed, app
45.0'	55.0'		55.0' to 65.4' dark, fract, carrot to 59, from 5, pect, are a
55.0'	65.4'		65.4' to 72.7' 60.5' bedded
65.4'	72.7'		72.7' to 78.6' 60.9'
72.7'	78.6'		78.6' to 80.7' 61.6'
78.6'	80.7'		80.7' to 82.0' 62.1'
80.7'	82.0'		
82.0'	86.0'		

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

Division		Installation		Hole No.		Sheet	
So. Western		Fort Worth District		8A6C-85		1 of 2 SHEETS	
10. SIZE AND TYPE OF BIT 6" auger 6" core 11. DATE FOR ELEVATION INFORMATION 11/1/74							
12. MANUFACTURER'S DESIGNATION OF DRILL Pulling 1500							
13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN 0							
14. TOTAL NUMBER CORE BOXES 12							
15. ELEVATION GROUND WATER 0							
16. DATE HOLE STARTED 3 Dec 74 COMPLETED 6 Dec 74							
17. ELEVATION TOP OF HOLE 600.5' 599.5'							
18. TOTAL CORE RECOVERY FOR BORING 100%							
19. SIGNATURE OF INSPECTOR [Signature]							
7th LEGEND		CLASSIFICATION OF MATERIALS (Description)		CORE RECOVERY (%)		REMARKS (Depth, etc., in feet)	
0.0' to 3.5'		SAND --		Jar A		Drillings	
		tan, loose, moist, fine to medium, silty, non-calcareous		B		0.0' to 7.0' 8" auger 7.0' to 67.0' 6" core 0.0' to 6.0' 8" casing	
3.5' to 25.6'		SAND (primary) --		7.0		Jar samples	
		3.5' to 6.0' brown, non-cemented, non-calcareous, fine to medium, slightly clayey, very moist, with numerous ironstone concretions (to 6"), easy to auger		100		A. 0.0' to 3.5' B. 3.5' to 6.0'	
		6.0' to 8.6' reddish-brown, poorly cemented, with concretions, very difficult to auger		100		Carton samples	
		8.6' to 14.2' reddish-brown, non-cemented, massive, very moist, non-calcareous, with scattered small ironstone concretions, carbonaceous inclusions, and decayed roots		100		1. 7.0' to 7.9' 2. 12.3' to 13.2' 3. 16.0' to 16.8' 4. 18.0' to 18.9' 5. 27.7' to 28.6' 6. 32.1' to 33.0' 7. 34.7' to 35.6' 8. 41.4' to 42.3' 9. 48.1' to 49.0' 10. 54.0' to 54.9' 11. 58.3' to 59.2' 12. 65.6' to 66.5'	
		14.2' to 25.6' becomes light gray with reddish-brown and yellowish-brown, clayey, with some carbonaceous matter and occasional thin veins of selenite		100		Note Depth of weathering at 33.7'	
		18.0' to 19.8' CLAY, predominantly gray, sandy, with pockets of yellowish-brown clayey sand		100		Water level Hole was not bailed but left open for water level checks.	
		19.8' to 25.6' borderlime clay, gray, massive with lenses of clayey sand and sandy clay		100			
25.6' to 45.0'		SHALE --		100			
		25.6' to 26.7' dark purple, sandy, massive, with ironstone nodules		100			
		26.7' to 28.6' light gray and gray, slightly weathered, approximately 4.0 on hand		100			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY (%)	REMARKS (Depth, etc., in feet)
600.5'	0.0'		penetrator, thin-bedded, non-calcareous, non-fractured, and non-jointed	41.7	
599.5'	1.0'		28.6' to 33.7' becomes calcareous, 74.5 on hand penetrator	10	
598.5'	2.0'		33.7' to 45.0' non-weathered, gray, very calcareous, silty, cemented, breaks along bedding planes, but bedding is not apparent	00	
597.5'	3.0'		34.0' to 34.2' must be noted	1.7	
596.5'	4.0'		42.8' to 45.0' with scattered fossils	53.0	
595.5'	5.0'		45.0' to 57.6'	11	
594.5'	6.0'		SHALE --	60.2	
593.5'	7.0'		45.0' to 51.3' transitional with above unit, very argillaceous, with numerous lenses and partings of shale, gray, moderately well cemented, with numerous fossils from 50.8' to 51.2'	0.5	
592.5'	8.0'		51.3' to 57.6' becomes light gray, well cemented, with numerous lenses of gray, argillaceous limestone	10	
591.5'	9.0'		57.6' to 60.5'	01	
590.5'	10.0'		SHALE --	67.0	
589.5'	11.0'		dark gray, thin-bedded, non-fractured, non-jointed, calcareous on bedding planes to 59.0', non-calcareous from 59.0' to 70, scattered pockets of thin, thin bedded are sandy	6.2	
588.5'	12.0'		60.5' to 60.9' SAND, thin-bedded, very fine	6.2	
587.5'	13.0'		60.9' to 61.0' SILTSTONE	6.2	
586.5'	14.0'		61.6' fossils on bedding plane	6.2	
585.5'	15.0'		62.1' to 62.3' fossiliferous	6.2	

RECORD DRAWING--WORK AS PULIT

SYMBOL	NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY	RAY ROBERTS LAKE			
DRAWN BY	ELM FORK, TRINITY RIVER, TEXAS			
REVIEWED BY	EMBANKMENT, SPILLWAY AND			
	OUTLET WORKS			
	LOGS OF BORINGS			
	8A6C-84 AND 8A6C-85			
APPROVED BY	INVITATION NO. DAC#63-B2-B 6025 DATE MAR, 1982			
	CONTRACT NO. DAC#63-92 C 6515			
	DRAWING NO. 4, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20			

Hole No. 337-86

DRILLING LOG PROJECT: Southwestern LOCATION: Aubrey Lake Left Abutment DRILLING AGENCY: Corps of Engineers HOLE NO. (as shown on drawing sheet and site number): SGP-86 NAME OF DRILLER: Willie DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ deg. from vert. THICKNESS OF OVERBURDEN: 0.0' DEPTH DRILLED INTO ROCK: 140.0' TOTAL DEPTH OF HOLE: 140.0'		INSTALLATION PORT FORTH DISTRICT HOLE SIZE AND TYPE OF BIT: 3 1/8" fishtail DATE FOR TCE ACTION: 15 Dec 74 DATE FOR TCE ACTION: 6 Jan 75 HOLE NUMBER: 1500 TOTAL NO. OF CEMENT BURDEN SAMPLES TAKEN: 0 TOTAL NUMBER CORE BOXES: 0 ELEVATION GROUND WATER: 00 DATE HOLE: 15 Dec 74 ELEVATION TOP OF HOLE: 0 TOTAL CORE RECOVERY FOR BORING: 0 SIGNATURE OF INSPECTOR: <i>Joseph A. Chubb</i>		SHEET 1 OF 2 004	
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE SECTION NO.	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of penetration, etc., if significant)
	0.0'		0.0' to 68.5'			Drilling
			SAND -			0.0' to 140.0' 3 1/8" fishtail
			red, fine-grained			Jar sample
			8.0' becomes firmer, possibly clayey			A. 45.0' (from split spoon; may be fall-in)
			14.5' ironstone concretion			Offset
			20.0' to 21.5' fairly hard, poorly cemented			Due to inaccessibility, hole was offset approximately 50' ESE from elevation 690.26' to elevation 674.8' (as measured by hand level). Packer lost in hole at 95.0', and hole was re-drilled 4.5' 3 at same elevation.
						Note
						Attempted unsuccessfully to obtain sand samples with Shelby tube, split spoon, and NX core barrel. Hole was pressure tested and electric logged. Logging is by drilling action and cuttings.

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE SECTION NO.	BOX OR SAMPLE NO.	REMARKS
	68.5'		68.5' to 101.3'			
			SHALE -			
			gray, non-calcareous			
			73.5' to 74.1' harder			
			77.2' very hard			
			79.5' to 81.5' very hard			
			91.5' to 101.0' sandy, cuts very easily			
			101.0' to 101.3' very hard			
			101.3' to 115.0'			
			SHALE -			
			gray, calcareous, cuts easily to 106.0'			
			106.8' very hard			
			115.0' to 132.8'			
			LIDESTONE -			
			121.0' to 121.2' soft			
			121.0' to 132.8' becomes very hard			
			132.8' to 140.0'			
			SHALE -			
			dark gray, non-calcareous			
			T. D. in shale @ 140.0'			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	LOG NO. (Sample No.)	REMARKS (Drilling time, water flow, depth of penetration, etc., if significant)
70			68.5' to 101.3' SHALE -- gray, non-calcareous 73.8' to 74.1' harder 77.2' very hard		
80			79.5' to 81.5' very hard 91.5' to 101.0' sandy, cuts very easily		
90					
100			101.0' to 101.3' very hard 101.3' to 115.0' SHALE -- gray, calcareous, cuts easily to 106.0' 108.8' very hard		
110			115.0' to 132.8' LIMESTONE --		
120			121.0' to 121.2' soft 127.0' to 132.8' becomes very hard 132.8' to 140.0' SHALE -- dark gray, non-calcareous		
140			E. D. in shale @ 140.0'		

DRILLING LOG		Southwestern		Fort Worth District		Male No. calyx hole	
PROJECT Aubrey Lake		W. SITE AND TYPE OF BIT 2 1/2" AUGER		W. DATE FOR ELEVATION MEASUREMENT		SHEET 1 OF 2 SHEETS	
LOCATION (Coordinates or Station)		W. MANUFACTURER'S DESIGNATION OF DRILL		W. TOTAL NO. OF OVER-ROUNDER SAMPLES TAKEN		DISTURBED 0 1 UNDISTURBED 2	
DRILLING AGENCY Corps of Engineers		W. TOTAL NUMBER CORE BOXES		W. ELEVATION GROUND WATER		0	
HOLE NO. (As shown on drawing title and file number)		calyx hole		W. DATE HOLE		STARTED 3 Mar 75 COMPLETED 3 Mar 75	
NAME OF DRILLER Brewer		W. ELEVATION TOP OF HOLE		W. TOTAL CORE RECOVERY FOR BORING		SIGNATURE OF INSPECTOR Joseph A. Smith	
DIRECTION OF HOLE VERTICAL <input checked="" type="checkbox"/> INCLINED		W. DATE HOLE		W. ELEVATION TOP OF HOLE		REMARKS (Drilling time, water flow, depth of penetration, etc., if significant)	
THICKNESS OF OVERBURDEN 45.0'		W. DATE HOLE		W. ELEVATION TOP OF HOLE		REMARKS (Drilling time, water flow, depth of penetration, etc., if significant)	
DEPTH DRILLED INTO ROCK 1.5'		W. DATE HOLE		W. ELEVATION TOP OF HOLE		REMARKS (Drilling time, water flow, depth of penetration, etc., if significant)	
TOTAL DEPTH OF HOLE 46.5'		W. DATE HOLE		W. ELEVATION TOP OF HOLE		REMARKS (Drilling time, water flow, depth of penetration, etc., if significant)	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	LOG NO. (Sample No.)	REMARKS (Drilling time, water flow, depth of penetration, etc., if significant)	REMARKS (Drilling time, water flow, depth of penetration, etc., if significant)	
			0.0' to 45.0'			Drilling	
			CLAY - - -			0.0' to 16.5' 42" auger	
			0.0' to 6.0' low to medium plasticity, dark brownish-gray, very stiff, moist, silty			0.0' to 29.6' 43" casing	
			6.0' to 8.0' with small, irregular lime nodules			Water level	
			8.0' to 12.0' becomes brown, hard			Boring was making water from between 20.0' and 21.0' to 45.0'. Hole tended to cave from 21.0' to 30'	
			12.0' to 14.5' low plasticity, brown, very stiff, moist, slightly sandy			Cylinder samples	
			14.5' to 16.0' becomes stiff, sandy			1. 19.6' to 20.2'	
			16.0' to 19.6' low plasticity, brown, medium stiff, very moist, sandy			2. 21.6' to 22.2'	
			19.6' to 35.0' becomes saturated, soft, very easy to auger				
			35.0' to 45.0' becomes very sandy with gravel and small boulders in lower 1.5'				
			45.0' to 46.5'				
			SHALE - - -			D. @ 46.5' in shale	

DRILLING LOG			SECTION		INSTALLATION	
1. PROJECT			Southampton		Port City	
2. LOCATION (Name of Project)			Aubrey Dam		10. SIZE AND TYPE OF BIT	
3. DRILLING AGENCY			Tunnel Outlet Series		11. DATE, TIME OF ELEVATION	
4. HOLE NO. (See also on drawing title)			Corps of Engineers		12. MANUFACTURER'S LOG	
5. NAME OF DRILLER			Kethwaqua		13. POLARIS 1500	
6. DIRECTION OF HOLE			[] VERTICAL [] INCLINED		14. TOTAL NO. OF OVER-BOURDEN SAMPLES TAKEN	
7. THICKNESS OF OVERBURDEN			15.2'		15. TOTAL NUMBER CORES	
8. DEPTH DRILLED INTO ROCK			10.3'		16. ELEVATION GROUND SURFACE	
9. TOTAL DEPTH OF HOLE			25.5'		17. DATE HOLE	
ELEVATION			DEPTH		18. ELEVATION TOP OF HOLE	
LEGEND			CLASSIFICATION OF MATERIALS (Description)		19. TOTAL CORE RECOVERED	
					20. SIGNATURE OF INSPECTOR	
0.0' to 15.2'			CLAY AND SAND - clay dominates overburden with sand noted only at 6.0'. Clay from 0.0' to 2.0' light reddish brown, stiff, silty, sandy, medium to low plasticity, slightly moist; becoming dry, finely sandy, light rust brown at 4.0'. Sand at 6.0' fine grained, brown, clayey with scattered fine gravel. Clay was noted below and to 15.2'; reddish brown, some gray, silty, slightly sandy, medium to low plasticity, medium to stiff, moist, non-calcareous.		A	
15.2' to 17.2'			SHALE - tan soft, silty, calcareous.		B	
17.2' to 25.5'			LIMESTONE - gray, soft to medium hard to hard, fine to medium grained, argillaceous, fossiliferous.		C	
2. D. 25.5'					D	

File No. 81677-02
SHEET 1 OF 1 SHEETS

DRILLING LOG
PROJECT: Aubrey Dam
LOCATION: (Continuation of Form 1336)
Tunnel Outlet Works
DRILLING AGENCY: Corps of Engineers
HOLE NO. 81677-02
NAME OF DRILLER: Hargrave
DIRECTION OF HOLE: VERTICAL
THICKNESS OF OVERBURDEN: 15.2'
DEPTH DRILLED INTO ROCK: 10.3'
TOTAL DEPTH OF HOLE: 25.5'

INSTALLATION: Port North
NO. SIZE AND TYPE OF BIT: 8" Auger
DATE FOR ELEVATION INFORMATION: 19 Jan 1976
MANUFACTURER'S DESIGNATION OF DRILL: Falline 1500
TOTAL NO. OF OVER BURDEN SAMPLES TAKEN: 7
TOTAL NUMBER CORE BOXES: 2
ELEVATION GROUND WATER: 20.0'
DATE HOLE STARTED: 19 Jan 1976
DATE HOLE COMPLETED: 20 Jan 1976
TOTAL CORE RECOVERY FOR BOXES: 100%
SIGNATURE OF INSPECTOR: *James R. Logan*

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SCORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water level, depth of penetration, etc., if significant)
0.0'	15.2'		CLAY AND SAND - clay dominates overburden with sand noted only at 6.0'. Clay from 0.0' to 2.0' light reddish brown, stiff, silty, sandy, medium to low plasticity, slightly moist; becoming dry, finely sandy, light rust brown at 4.0'. Sand at 6.0' fine grained, brown, clayey with scattered fine gravel. Clay was noted below and to 15.2'; reddish brown, some gray, medium to low plasticity, medium to stiff, moist, non-calcareous.			1. Hole was bailed upon completion and perforated plastic pipe installed for water level observation.
15.2'	17.2'		15.2' to 17.2' SHALE - tan soft, silty, calcareous.			2. Drilling: 8" auger to 2.0'; Denison barrel to 17.0'; 6" core to 25.5'.
17.2'	25.5'		17.2' to 25.5' LIMESTONE - gray, soft to medium hard to hard, fine to medium grained, argillaceous, fossiliferous.			3. Jars: A. 0.0' to 2.0' B. At 4.0' C. At 6.0' D. At 8.0' E. At 11.0' F. At 13.0' G. At 15.0' H. At 17.0'
						4. Denison Cans: 1. 2.0' to 4.0' 2. 4.0' to 6.0' 3. 6.0' to 8.0' 4. 9.0' to 11.0' 5. 11.0' to 13.0' 6. 13.0' to 15.0' 7. 15.0' to 17.0'
						5. Cartons: 1. 18.7' to 19.7' 2. 23.3' to 24.2'
						6. Core Boxes: 1. 17.0' to 21.5' 2. 21.5' to 25.5'

FORM 1336 PREVIOUS EDITIONS ARE OBSOLETE.
PROJECT: Aubrey Dam
HOLE NO. 81677-02

File No. 81677-01
SHEET 1 OF 1 SHEETS

DRILLING LOG
PROJECT: Aubrey Lake
LOCATION: (Continuation of Form 1336)
Spillway Site "B"
DRILLING AGENCY: Corps of Engineers
HOLE NO. 81677-01
NAME OF DRILLER: Schooner
DIRECTION OF HOLE: VERTICAL
THICKNESS OF OVERBURDEN: 7.0'
DEPTH DRILLED INTO ROCK: 13.0'
TOTAL DEPTH OF HOLE: 20.0'

INSTALLATION: Port North
NO. SIZE AND TYPE OF BIT: 8" Auger; 6" Core
DATE FOR ELEVATION INFORMATION: 21 Nov. 1975
MANUFACTURER'S DESIGNATION OF DRILL: Falline 1500
TOTAL NO. OF OVER BURDEN SAMPLES TAKEN: 2
TOTAL NUMBER CORE BOXES: 2
ELEVATION GROUND WATER: 20.0'
DATE HOLE STARTED: 21 Nov. 1975
DATE HOLE COMPLETED: 21 Nov. 1975
TOTAL CORE RECOVERY FOR BOXES: 100%
SIGNATURE OF INSPECTOR: *James R. Logan*

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SCORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water level, depth of penetration, etc., if significant)
0.0'	2.0'		CLAY - as described in interval below.			1. Hole was bailed to near total depth upon completion. 4" plastic pipe, slotted, was installed in boring for future water level observations.
2.0'	7.0'		CLAY 2.0' to 5.0' - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous. 5.0' to 7.0' - as above interval, slightly lighter in color, some very fine gravel widely scattered throughout.			2. Drilling: 8" auger to 7.0'; 6" core to total depth of 20.0'.
7.0'	13.9'		7.0' to 13.9' CLAY-SHALE - soft, rust brown and gray, silty, highly weathered, non-calcareous, occasional very fine gravel scattered throughout recovery.			3. Jars: A. 2.0' to 5.0' B. 5.0' to 7.0'
13.9'	20.0'		13.9' to 20.0' SHALE - tan with some gray marbling, soft, occasional soft white lily inclusions. Shale is non-calcareous and weathered to total depth. Sand lenses noted from 13.5' to 13.9'; fine grained, rust brown. Iron concretions zone noted from 14.9' to 15.1'.			4. Cartons: 1. 7.5' to 8.5' 2. 11.5' to 12.5' 3. 16.7' to 17.6' 4. 19.0' to 20.0'
						5. Core Boxes: 1. 7.0' to 13.4' 2. 13.4' to 20.0'

FORM 1336 PREVIOUS EDITIONS ARE OBSOLETE.
PROJECT: Aubrey Lake
HOLE NO. 81677-01

Hole No. 8A6C-301

DRILLING LOG		INSTALLATION	
Southwestern		Fort Worth	
PROJECT: Aubrey Lake		10. SITE AND TYPE OF BIT: 8" AUGER; 6" CORE	
LOCATION: Spillway Site #2		11. SURFACE ELEVATION: 1500.00 ±	
DRILLING AGENCY: Corps of Engineers		12. MANUFACTURER'S DESIGNATION OF CHILL: Failing 1500	
DATE OF LOG: 8A6C-301		13. TOTAL NO. OF CORES: 2	
NAME OF DRILLER: Schoonover		14. ELEVATION GROUND WATER: 0.0	
SECTION OF HOLE: 0.0' to 20.0'		15. DATE HOLE: 21 Nov. 1975	
THICKNESS OF OVERBURDEN: 7.0'		16. ELEVATION TOP OF HOLE: 1500.00 ±	
DEPTH DRILLED INTO ROCK: 13.0'		17. TOTAL CORE RECOVERY FOR BORING: 100%	
TOTAL DEPTH OF HOLE: 20.0'		18. SIGNATURE OF INSPECTOR: <i>James L. Logan</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	REMARKS
0.0'	2.0'		CLAY - as described in interval below.	1. Hole was bailed to near total depth upon completion. 4" plastic pipe, slotted, was installed in boring for future water level observations.
2.0'	7.0'		CLAY	
7.0'	13.9'		CLAY - as above interval, slightly lighter in color, some very fine gravel widely scattered throughout.	
13.9'	20.0'		CLAY-SHALE - soft, rust brown and gray, silty, highly weathered, non-calcareous, occasional very fine gravel scattered throughout recovery.	
20.0'			SHALE - tan with some gray marbling, soft, occasional soft white clay inclusions. Shale is non-calcareous and weathered to total depth. Sand lenses noted from 13.5' to 13.9'; fine grained, rust brown. Iron concretionary zone noted from 14.9' to 15.1'.	

ENGINEER FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Aubrey Lake

HOLE NO. 8A6C-301

Hole No. 8A6C-302

DRILLING LOG		INSTALLATION	
Southwestern		Fort Worth	
PROJECT: Aubrey Lake		10. SITE AND TYPE OF BIT: 8" AUGER; 6" CORE	
LOCATION: Spillway Site #2		11. SURFACE ELEVATION: 1500.00 ±	
DRILLING AGENCY: Corps of Engineers		12. MANUFACTURER'S DESIGNATION OF CHILL: Failing 1500	
DATE OF LOG: 8A6C-302		13. TOTAL NO. OF CORES: 2	
NAME OF DRILLER: Schoonover		14. ELEVATION GROUND WATER: 0.0	
SECTION OF HOLE: 0.0' to 20.0'		15. DATE HOLE: 20 Nov. 1975	
THICKNESS OF OVERBURDEN: 6.5'		16. ELEVATION TOP OF HOLE: 1500.00 ±	
DEPTH DRILLED INTO ROCK: 19.6'		17. TOTAL CORE RECOVERY FOR BORING: 100%	
TOTAL DEPTH OF HOLE: 20.0'		18. SIGNATURE OF INSPECTOR: <i>James L. Logan</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	REMARKS
0.0'	2.0'		CLAY - as described in interval below.	1. Installed slotted plastic pipe after bailing to near T.
2.0'	6.5'		CLAY	
6.5'	13.0'		CLAY - as above interval; light brown.	
13.0'	19.6'		CLAY-SHALE - soft, rust brown and gray, silty, highly weathered, non-calcareous, occasional fine gravel scattered throughout recovery; appears to be reworked shale. Core becoming calcareous at 12.0'.	
19.6'	20.0'		SHALE - tan with some gray marbling, soft, occasional soft white clay inclusions. Occasional mill pockets of rust brown silt. Shale is non-calcareous and weathered to total depth.	

ENGINEER FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: Aubrey Lake

HOLE NO. 8A6C-302

RECORD DRAWING - WORK AS FILED

U S ARMY ENGINEER DISTRICT, FORT WORTH			
CORPS OF ENGINEERS			
604' 404' N, 1444 S			
DESIGNED BY	RAY ROBERTS LAKE		
DRAWN BY	ELM FORK, TRINITY RIVER, TEXAS		
REVIEWED BY	EMBANKMENT, SPILLWAY AND		
	OUTLET WORKS		
	LOGS OF BORINGS		
	8A6C-91, 8A6DC-92, 8A6C-301, AND 8A6C-302		
INVESTIGATED BY	INVESTIGATION NO. 8A6C-91-82 B. 001-20 DATE MAP, 1982		
INSPECTED BY	CONTRACT NO. 8A6C-91-82 B. 001-20		
	DRAWING NUMBER		

DRILLING LOG		Location		Port		Sheet	
1. PROJECT		2. LOCATION (Country or State)		3. DATE		4. SHEET	
5. DRILLING AGENCY		6. NAME OF DRILLER		7. DATE		8. SHEET	
9. DIRECTION OF HOLE		10. DATE		11. SHEET		12. SHEET	
13. THICKNESS OF OVERBURDEN		14. DATE		15. SHEET		16. SHEET	
17. DEPTH DRILLED INTO ROCK		18. DATE		19. SHEET		20. SHEET	
21. TOTAL DEPTH OF HOLE		22. DATE		23. SHEET		24. SHEET	
25. ELEVATION OF SURFACE		26. DATE		27. SHEET		28. SHEET	
29. ELEVATION OF HOLE		30. DATE		31. SHEET		32. SHEET	
33. ELEVATION OF HOLE		34. DATE		35. SHEET		36. SHEET	
37. ELEVATION OF HOLE		38. DATE		39. SHEET		40. SHEET	
41. ELEVATION OF HOLE		42. DATE		43. SHEET		44. SHEET	
45. ELEVATION OF HOLE		46. DATE		47. SHEET		48. SHEET	
49. ELEVATION OF HOLE		50. DATE		51. SHEET		52. SHEET	
53. ELEVATION OF HOLE		54. DATE		55. SHEET		56. SHEET	
57. ELEVATION OF HOLE		58. DATE		59. SHEET		60. SHEET	
61. ELEVATION OF HOLE		62. DATE		63. SHEET		64. SHEET	
65. ELEVATION OF HOLE		66. DATE		67. SHEET		68. SHEET	
69. ELEVATION OF HOLE		70. DATE		71. SHEET		72. SHEET	
73. ELEVATION OF HOLE		74. DATE		75. SHEET		76. SHEET	
77. ELEVATION OF HOLE		78. DATE		79. SHEET		80. SHEET	
81. ELEVATION OF HOLE		82. DATE		83. SHEET		84. SHEET	
85. ELEVATION OF HOLE		86. DATE		87. SHEET		88. SHEET	
89. ELEVATION OF HOLE		90. DATE		91. SHEET		92. SHEET	
93. ELEVATION OF HOLE		94. DATE		95. SHEET		96. SHEET	
97. ELEVATION OF HOLE		98. DATE		99. SHEET		100. SHEET	
101. ELEVATION OF HOLE		102. DATE		103. SHEET		104. SHEET	
105. ELEVATION OF HOLE		106. DATE		107. SHEET		108. SHEET	
109. ELEVATION OF HOLE		110. DATE		111. SHEET		112. SHEET	
113. ELEVATION OF HOLE		114. DATE		115. SHEET		116. SHEET	
117. ELEVATION OF HOLE		118. DATE		119. SHEET		120. SHEET	
121. ELEVATION OF HOLE		122. DATE		123. SHEET		124. SHEET	
125. ELEVATION OF HOLE		126. DATE		127. SHEET		128. SHEET	
129. ELEVATION OF HOLE		130. DATE		131. SHEET		132. SHEET	
133. ELEVATION OF HOLE		134. DATE		135. SHEET		136. SHEET	
137. ELEVATION OF HOLE		138. DATE		139. SHEET		140. SHEET	
141. ELEVATION OF HOLE		142. DATE		143. SHEET		144. SHEET	
145. ELEVATION OF HOLE		146. DATE		147. SHEET		148. SHEET	
149. ELEVATION OF HOLE		150. DATE		151. SHEET		152. SHEET	
153. ELEVATION OF HOLE		154. DATE		155. SHEET		156. SHEET	
157. ELEVATION OF HOLE		158. DATE		159. SHEET		160. SHEET	
161. ELEVATION OF HOLE		162. DATE		163. SHEET		164. SHEET	
165. ELEVATION OF HOLE		166. DATE		167. SHEET		168. SHEET	
169. ELEVATION OF HOLE		170. DATE		171. SHEET		172. SHEET	
173. ELEVATION OF HOLE		174. DATE		175. SHEET		176. SHEET	
177. ELEVATION OF HOLE		178. DATE		179. SHEET		180. SHEET	
181. ELEVATION OF HOLE		182. DATE		183. SHEET		184. SHEET	
185. ELEVATION OF HOLE		186. DATE		187. SHEET		188. SHEET	
189. ELEVATION OF HOLE		190. DATE		191. SHEET		192. SHEET	
193. ELEVATION OF HOLE		194. DATE		195. SHEET		196. SHEET	
197. ELEVATION OF HOLE		198. DATE		199. SHEET		200. SHEET	
201. ELEVATION OF HOLE		202. DATE		203. SHEET		204. SHEET	
205. ELEVATION OF HOLE		206. DATE		207. SHEET		208. SHEET	
209. ELEVATION OF HOLE		210. DATE		211. SHEET		212. SHEET	
213. ELEVATION OF HOLE		214. DATE		215. SHEET		216. SHEET	
217. ELEVATION OF HOLE		218. DATE		219. SHEET		220. SHEET	
221. ELEVATION OF HOLE		222. DATE		223. SHEET		224. SHEET	
225. ELEVATION OF HOLE		226. DATE		227. SHEET		228. SHEET	
229. ELEVATION OF HOLE		230. DATE		231. SHEET		232. SHEET	
233. ELEVATION OF HOLE		234. DATE		235. SHEET		23	

DRILLING LOG		DIVISION	INSTALLATION		
1. PROJECT		Southwestern	NO. HOLE AND TYPE OF 11. CATEGORY OF PROJECT		
2. LOCATION (Geographic or City)		Aubrey Lake Spillway Site "B"	12. MANUFACTURER OF 13. TOTAL NO. OF BUNDLES SAMPLED		
3. DRILLING AGENCY		Corps of Engineers	14. ELEVATION OF 15. ELEVATION ABOVE		
4. HOLE NO. (as shown on drilling site and this number)		BAC-304	16. DATE HOLE		
5. NAME OF DRILLER		Schoonover	17. ELEVATION TOP OF 18. TOTAL CORE RECORDED 19. SIGNATURE OF THE		
6. DIRECTION OF HOLE					
7. THICKNESS OF OVERBURDEN		2.0'			
8. DEPTH DRILLED INTO ROCK		49.0'			
9. TOTAL DEPTH OF HOLE		51.0'			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SCORE RECORD NO.	SCORE RECORD NO.
			0.0' to 2.0'		
			CLAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.		
			2.0' to 13.7'		
			CLAY-SHALE		
			2.0' to 7.0' - rust brown soft, non-calcareous; appears to be reworked shale; more moist from 4.0' to 7.0'.		
			7.0' to 13.7' - as de- scribed above with some gray mottling and scat- tered ferrous nodules.		
			13.7' to 14.0'		
			SANDSTONE - very fine grain- ed, light rust brown, soft, well consolidated, non-calcareous.		
			14.0' to 17.0'		
			SHALE - light tan to gray- ish tan, soft, silty, non-calcareous.		
			17.0' to 17.6'		
			SANDSTONE - as described in interval 13.7' to 14.0'.		
			17.6' to 19.8'		
			SHALE - as described above.		
			19.8' to 20.2'		
			SANDSTONE - as described above.		
			20.2' to 20.6'		
			SHALE - as described above.		
			20.6' to 22.8'		
			SANDSTONE - as described above with approximately 5° from horizontal bed- ding angle.		
			22.8' to 32.7'		
			SHALE - as described above, approaching base of ex- tensive weathering from 28.7' to 32.7' as evi- denced by intermittent thin beds of bluish gray and some sandstone.		
			Distinct iron concretio- nary zone was noted from 28.7' to 29.2'. Shale becoming calcareous below 24.7'.		
			32.7' to 51.0'		
			SHALE - unweathered, soft, bluish gray, varies from waxy to silty to very fine sandy, fossiliferous, calcareous.		
			T. D. 51.0'		

Male No. 846C-304

Southwestern Division

INSTALLATION Port Worth

10 HOLE NO. AND TYPE OF BIT 8" Auger 6" Core

11 DATE FOR ELEVATION MEASUREMENT 12/15/75

12 MANUFACTURER'S DESIGNATION OF DRILL FALLING 1500

13 TOTAL NO. OF BURDEN SAMPLES TAKEN 2 0

14 TOTAL NUMBER CORE BOXES 8

15 ELEVATION GROUND WATER 20

16 DATE MOLE 1 Dec. 1975 3 Dec. 1975

17 ELEVATION TOP OF MOLE 2.0'

18 TOTAL CORE RECOVERY FOR BORING 49.0'

19 SIGNATURE OF INSPECTOR *James L. Rogers*

CLASSIFICATION OF MATERIALS (Description)

0' to 2.0' LAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.

0' to 13.7' LAY-SHALE 2.0' to 7.0' - rust brown soft, non-calcareous; appears to be reworked shale; more moist from 4.0' to 7.0'.

7.0' to 13.7' - as described above with some gray marbling and scattered ferrous nodules.

13.7' to 14.0' SANDSTONE - very fine grained, light rust brown, soft, well consolidated, non-calcareous.

14.0' to 17.0' ALF - light tan to grayish tan, soft, silty, non-calcareous.

17.0' to 19.8' ALF - as described above.

19.8' to 20.2' SANDSTONE - as described above.

20.2' to 20.6' ALF - as described above.

20.6' to 22.8' SANDSTONE - as described above with approximately 5° from horizontal bedding angle.

22.8' to 32.7' ALF - as described above, approaching base of extensive weathering from 25.7' to 32.7' as evidenced by intermittent thin beds of bluish gray silty iron concretionary zone was noted from 27' to 29.2'. Shale coating calcareous below 27'.

32.7' to 51.0' ALF - unweathered, soft, vish gray, varies from silty to very fine sandy, fossiliferous, calcareous.

51.0' to 51.0' - T. D. 51.0'

REMARKS (Drilling time, water level, depth of casing, etc., if applicable)

1. Hole was bailed to near total depth upon completion. Water level 24 hours after completion at 16.0'. Hole was backfilled.

2. Drilling: 8" auger to 7.0'; 6" core to total depth of 51.0'.

3. Jars: A. 2.0' to 4.0' B. 4.0' to 7.0'

4. Cartons: 1. 7.5' to 8.5' 2. 12.5' to 13.5' 3. 17.8' to 18.8' 4. 23.4' to 24.4' 5. 27.6' to 28.6' 6. 31.0' to 32.0' 7. 39.5' to 40.5' 8. 45.5' to 46.5' 9. 50.0' to 51.0'

5. Core Boxes: 1. 7.0' to 12.5' 2. 12.5' to 18.3' 3. 18.3' to 24.7' 4. 24.7' to 30.3' 5. 30.3' to 36.0' 6. 36.0' to 41.7' 7. 41.7' to 47.3' 8. 47.3' to 51.0'

Male No. 846C-305

Southwestern Division

INSTALLATION Port Worth

10 HOLE NO. AND TYPE OF BIT 8" Auger 6" Core

11 DATE FOR ELEVATION MEASUREMENT 12/15/75

12 MANUFACTURER'S DESIGNATION OF DRILL FALLING 1500

13 TOTAL NO. OF BURDEN SAMPLES TAKEN 2 0

14 TOTAL NUMBER CORE BOXES 4

15 ELEVATION GROUND WATER 20

16 DATE MOLE 3 Dec. 1975 4 Dec. 1975

17 ELEVATION TOP OF MOLE 2.0'

18 TOTAL CORE RECOVERY FOR BORING 100

19 SIGNATURE OF INSPECTOR *James L. Rogers*

CLASSIFICATION OF MATERIALS (Description)

0.0' to 6.0' CLAY 0.0' to 2.0' - medium plasticity, hard, silty to finely sandy, brown, slightly moist, non-calcareous.

2.0' to 4.0' - as above interval; slightly calcareous.

4.0' to 6.0' - yellowish brown, medium plasticity, stiff, silty, finely sandy, some scattered fine gravel, moist, non-calcareous.

6.0' to 12.0' CLAY-SHALE - rust brown, soft, some gray mixed, scattered gravel and ferrous nodules, non-calcareous.

12.0' to 21.0' SHALE AND SANDSTONE - shale is dominant; light tan to grayish tan, silty, non-calcareous. Shale is interrupted with occasional thin beds of sandstones, notably from 14.5' to 17.3'; sandstone is light rust brown, very fine grained, soft and non-calcareous. Maximum thickness without shale interruption was 1.0' (Carton No. 3 from 14.5' to 15.5'). Shale was dominant from 17.3' to 20.7'. Last sandstone in this boring was logged from 20.7' to 21.0'.

21.0' to 30.0' SHALE - soft, light tan to grayish tan, silty, some very widely scattered calcite; iron concretionary zone, very calcareous noted from 27.5' to 29.9'. Shale is silty calcareous from this point to total depth and is weathered throughout.

30.0' to 30.0' - T. D. 30.0'

REMARKS (Drilling time, water level, depth of casing, etc., if applicable)

1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation. Water level after 24 hours at 10.9'.

2. Drilling: 8" auger to 7.0'; 6" core to total depth of 30.0'.

3. Jars: A. 2.0' to 4.0' B. 4.0' to 6.0' C. 6.0' to 7.0'

4. Cartons: 1. 7.5' to 8.5' 2. 12.9' to 13.9' 3. 14.5' to 15.5' 4. 21.0' to 22.0' 5. 29.0' to 30.0'

5. Core Boxes: 1. 7.0' to 12.6' 2. 12.6' to 19.2' 3. 19.2' to 24.8' 4. 24.8' to 30.0'

Male No. 846C-305

Southwestern Division

INSTALLATION Port Worth

10 HOLE NO. AND TYPE OF BIT 8" Auger 6" Core

11 DATE FOR ELEVATION MEASUREMENT 12/15/75

12 MANUFACTURER'S DESIGNATION OF DRILL FALLING 1500

13 TOTAL NO. OF BURDEN SAMPLES TAKEN 2 0

14 TOTAL NUMBER CORE BOXES 4

15 ELEVATION GROUND WATER 20

16 DATE MOLE 3 Dec. 1975 4 Dec. 1975

17 ELEVATION TOP OF MOLE 2.0'

18 TOTAL CORE RECOVERY FOR BORING 100

19 SIGNATURE OF INSPECTOR *James L. Rogers*

CLASSIFICATION OF MATERIALS (Description)

0.0' to 6.0' CLAY 0.0' to 2.0' - medium plasticity, hard, silty to finely sandy, brown, slightly moist, non-calcareous.

2.0' to 4.0' - as above interval; slightly calcareous.

4.0' to 6.0' - yellowish brown, medium plasticity, stiff, silty, finely sandy, some scattered fine gravel, moist, non-calcareous.

6.0' to 12.0' CLAY-SHALE - rust brown, soft, some gray mixed, scattered gravel and ferrous nodules, non-calcareous.

12.0' to 21.0' SHALE AND SANDSTONE - shale is dominant; light tan to grayish tan, silty, non-calcareous. Shale is interrupted with occasional thin beds of sandstones, notably from 14.5' to 17.3'; sandstone is light rust brown, very fine grained, soft and non-calcareous. Maximum thickness without shale interruption was 1.0' (Carton No. 3 from 14.5' to 15.5'). Shale was dominant from 17.3' to 20.7'. Last sandstone in this boring was logged from 20.7' to 21.0'.

21.0' to 30.0' SHALE - soft, light tan to grayish tan, silty, some very widely scattered calcite; iron concretionary zone, very calcareous noted from 27.5' to 29.9'. Shale is silty calcareous from this point to total depth and is weathered throughout.

30.0' to 30.0' - T. D. 30.0'

REMARKS (Drilling time, water level, depth of casing, etc., if applicable)

1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation. Water level after 24 hours at 10.9'.

2. Drilling: 8" auger to 7.0'; 6" core to total depth of 30.0'.

3. Jars: A. 2.0' to 4.0' B. 4.0' to 6.0' C. 6.0' to 7.0'

4. Cartons: 1. 7.5' to 8.5' 2. 12.9' to 13.9' 3. 14.5' to 15.5' 4. 21.0' to 22.0' 5. 29.0' to 30.0'

5. Core Boxes: 1. 7.0' to 12.6' 2. 12.6' to 19.2' 3. 19.2' to 24.8' 4. 24.8' to 30.0'

Male No. 8A6C-305

INSTALLATION Port Worth

10 SIZE AND TYPE OF BIT 8" AUGER, 6" CORE

11 LOCATION (COUNTY AND CITY) Spillway Site "E"

12 MANUFACTURER'S DESIGNATION OF DRILL Palling 1500

13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 2 0

14 TOTAL NUMBER CORE BOXES 5

15 ELEVATION GROUND WATER

16 DATE HOLE STARTED 3 Dec. 1975 COMPLETED 4 Dec. 1975

17 ELEVATION TOP OF HOLE

18 TOTAL CORE RECOVERY FOR BORING 100

19 SIGNATURE OF INSPECTOR *James H. Logan*

CLASSIFICATION OF MATERIALS (Description)

1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation. Water level after 24 hours at 10.9'.

2. Drilling: 8" auger to 7.0'; 6" core to total depth of 30.0'.

3. Jars:

A. 2.0' to 4.0'

B. 4.0' to 6.0'

C. 6.0' to 7.0'

4. Cartons:

1. 7.5' to 8.5'

2. 12.9' to 13.9'

3. 14.5' to 15.5'

4. 21.0' to 22.0'

5. 29.0' to 30.0'

5. Core Boxes:

1. 7.0' to 12.6'

2. 12.6' to 19.2'

3. 19.2' to 24.8'

4. 24.8' to 30.0'

SHALE - rust brown, soft, some gray mixed, scattered gravel and ferruginous nodules, non-calcareous.

SHALE AND SANDSTONE - shale is dominant; light tan to grayish tan, silty, non-calcareous. Shale is interrupted with occasional thin beds of sandstones, notably from 14.5' to 17.3'; sandstone is light rust brown, very fine grained, soft and non-calcareous. Maximum thickness without shale interruption was 4.0' (Carton No. 3 from 14.5' to 15.5'). Shale was dominant from 17.3' to 20.7'. Last sandstone in this boring was logged from 20.7' to 21.0'.

SHALE - soft, light tan to grayish tan, silty, some very widely scattered selenite; iron concretions, very calcareous, noted from 23.4' to 23.9'. Shale is slightly calcareous from this point to total depth and is weathered throughout.

T. D. 30.0'

ENGINEER Aubrey Lake

PROJECT 8A6C-305

Male No. 8A6C-306

INSTALLATION Port Worth

10 SIZE AND TYPE OF BIT 8" AUGER, 6" CORE

11 LOCATION (COUNTY AND CITY) Spillway Site "E"

12 MANUFACTURER'S DESIGNATION OF DRILL Palling 1500

13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 1 0

14 TOTAL NUMBER CORE BOXES 4

15 ELEVATION GROUND WATER

16 DATE HOLE STARTED 4 Dec. 1975 COMPLETED 5 Dec. 1975

17 ELEVATION TOP OF HOLE

18 TOTAL CORE RECOVERY FOR BORING 100

19 SIGNATURE OF INSPECTOR *James H. Logan*

CLASSIFICATION OF MATERIALS (Description)

1. Hole was bailed to near total depth upon completion and slotted plastic pipe was installed for water level observation.

2. Drilling: 8" auger to 7.0'; 6" core to total depth of 30.2'.

3. Jars:

A. 2.0' to 5.0'

B. 5.0' to 7.0'

4. Cartons:

1. 8.0' to 9.0'

2. 14.5' to 15.5'

3. 20.9' to 21.9'

4. 24.6' to 25.5'

5. 28.2' to 29.1'

5. Core Boxes:

1. 7.0' to 12.9'

2. 12.9' to 18.6'

3. 18.6' to 24.2'

4. 24.2' to 30.2'

SHALE - light tan to gray, (predominantly gray below 25.0'), silty, scattered small crystals of selenite, slightly calcareous; iron concretions, very calcareous, noted from 21.9' to 22.4'. Some very fine-grained gray sand interbedded with shale below 29.0'. Shale is weathered to total depth.

T. D. 30.2'

ENGINEER Aubrey Lake

PROJECT 8A6C-306

RECORD DRAWING-WORK AS BUILT

SYM	DC	NO	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY:	RAY ROBERTS LAKE				
DRAWN BY:	ELM FORK, TRINITY RIVER, TEXAS				
REVIEWED BY:	EMBANKMENT, SPILLWAY AND				
SUBMITTED BY:	OUTLET WORKS				
ENGINEER	LOGS OF BORINGS				
8A6C-303, 8A6C-304, 8A6C-305, AND 8A6C-306			INVITATION NO. DACW63-82-B-0025 DATE: MAR. 1982		
DRAWING NUMBER			CONTRACT NO. DACW63-82-C-0093		
SHEET NO. 33			SEQUENCE		

TO ACCOMPANY FOUNDATION REPORT

Hole No. 816C-307

DRILLING LOG PROJECT: Southwestern LOCATION: Grailway Site #5 DRILLING AGENCY: Corps of Engineers HOLE NO. (As shown on drawing sheet and file number): 816C-307 NAME OF DRILLER: Seabrookover DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED THICKNESS OF OVERBURDEN: 4.2' DEPTH DRILLED INTO ROCK: 20.6' TOTAL DEPTH OF HOLE: 25.0'		INSTALLATION Port No. 6 DATE AND TIME OF DRILLING: 6th August 1977 TIME OF DAY: 11:00 TOTAL NUMBER OF CORE BOXES: 1 ELEVATION OF GROUND WATER: 0 DATE MOLE: 18 Dec. 1975 ELEVATION TOP OF MOLE: 18 Dec. 1975 TOTAL CORE RECOVERY FOR BORING: 20.6' SIGNATURE OF INSPECTOR: James H. Logan	
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS
0.0'	4.5'	No Sample	CLAY - medium plasticity, brown, hard, silty, sandy, slightly moist, non-calcareous.	1. Hole bailed to near total depth upon completion and slotted plastic pipe installed for water level observation.
4.5'	10.0'	B	CLAY-SHALE - rust brown, some gray mottled, soft, appears to be remolded shale, scattered small ferrous nodules, non-calcareous.	2. Drilling: 6" auger to 7.0'; 6" core to total depth of 25.0'.
10.0'	24.7'	Box 1	SEAL, SILTSTONE AND SANDSTONE - shale is light tan, some gray marbling, soft, variously grades into thin beds of siltstone and very fine grained sandstones; light rust brown and non-calcareous. Maximum thickness of sandstone is 0.8' from 18.3' to 19.1'. Last sandstone logged this interval from 22.0' to 22.5', brown, fine grained and calcareous. Shale as previously described becoming gray, slightly calcareous below 22.5'. Iron concretions zone, very calcareous, noted from 24.5' to 24.7'.	3. Jars: A. 2.0' to 4.5' B. 4.5' to 7.0'
20.0'		Box 2		4. Cartons: 1. 7.7' to 8.7' 2. 12.7' to 13.5' 3. 19.2' to 20.0' 4. 23.0' to 24.0'
		Box 3		5. Core Boxes: 1. 7.0' to 12.7' 2. 12.7' to 18.3' 3. 18.3' to 24.7'
				T. D. 25.0'

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT: **Aubrey Lake** HOLE NO: **816C-307**

Hole No. 816C-307

DRILLING LOG PROJECT: Southwestern LOCATION: Grailway Site #5 DRILLING AGENCY: Corps of Engineers HOLE NO. (As shown on drawing sheet and file number): 816C-308 NAME OF DRILLER: Seabrookover DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED THICKNESS OF OVERBURDEN: 3.5' DEPTH DRILLED INTO ROCK: 17.1' TOTAL DEPTH OF HOLE: 20.6'		INSTALLATION Port No. 6 DATE AND TIME OF DRILLING: 6th August 1977 TIME OF DAY: 11:00 TOTAL NUMBER OF CORE BOXES: 1 ELEVATION OF GROUND WATER: 0 DATE MOLE: 18 Dec. 1975 ELEVATION TOP OF MOLE: 18 Dec. 1975 TOTAL CORE RECOVERY FOR BORING: 17.1' SIGNATURE OF INSPECTOR: James H. Logan	
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ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	REMARKS
0.0'	3.5'	No Sample	CLAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.	1. Hole bailed to near total depth upon completion and slotted plastic pipe installed for water level observation.
3.5'	4.5'	C	CLAY-SHALE - rust brown to reddish brown, some gray, soft, gravelly (composed mostly of small ferrous nodules), some calcareous granules.	2. Drilling: 6" auger to 7.0'; 6" core to total depth of 25.0'.
10.0'	20.6'	Box 1	SHALE AND SANDSTONE - predominantly shale, light tan to grayish tan, soft, non-calcareous with interruptions of light rust brown, fine grained sandstone noted at the following intervals: 10.5' to 11.0'; 11.5' to 12.5'; 12.8' to 14.9'; 16.9' to 17.2'. Shale becoming slightly calcareous from 17.2' to total depth. Iron concretions zone, very calcareous from 20.0' to 20.4'.	3. Jars: A. 2.0' to 3.5' B. 3.5' to 4.5'
20.0'		Box 2		4. Cartons: 1. 8.4' to 12.4' 2. 14.4' to 19.0'
		Box 3		5. Core Boxes: 1. 7.0' to 12.7' 2. 12.8' to 18.3' 3. 20.0' to 24.7'
				T. D. 20.6'

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT: **Aubrey Lake** HOLE NO: **816C-307**

Hole No. 816C-309

DRILLING LOG Southwest Port North

PROJECT Aubrey Lake

LOCATION (Coordinates or Station) Spillway Site "F"

DRILLING AGENCY Corps of Engineers

HOLE NO. (As shown on drawing title and not numbered) 816C-309

NAME OF DRILLER Schoonover

DIRECTION OF HOLE ☐ VERTICAL ☐ INCLINED ☐ DES. FROM VEAT

THICKNESS OF OVERBURDEN 3.5'

DEPTH DRILLED INTO ROCK 17.1'

TOTAL DEPTH OF HOLE 20.6'

DATE HOLE STARTED 9 Dec. 1975 COMPLETED 9 Dec. 1975

ELEVATION TOP OF HOLE 100

TOTAL CORE RECOVERY FOR BORING 100

SIGNATURE OF INSPECTOR *James H. Logan*

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY (%)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, amount of overburden, etc., if significant)
0.0' to 3.5'		CLAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.	No Sample		1. Hole bailed to near total depth upon completion and slotted plastic pipe installed for water level observation.
3.5' to 4.5'		CLAY-SHALE - rust brown to reddish brown, some gray, soft, gravelly (composed mostly of small ferrous nodules), some calcareous greenish.			2. Drilling: 8" auger to 7.0'; 6" core to total depth of 20.6'.
4.5' to 20.6'		SHALE AND SANDSTONE - predominantly shale, light tan to grayish tan, soft, non-calcareous with interruptions of light rust brown, fine grained sandstone noted at the following intervals: 10.5' to 11.0'; 11.5' to 12.3'; 12.8' to 14.9'; 16.9' to 17.2'. Shale becoming slightly calcareous from 17.2' to total depth. Iron concretions zone, very calcareous from 20.0' to 20.4'.			3. Jars: A. 2.0' to 3.5' B. 3.5' to 4.5' C. 4.5' to 7.0'
					4. Cartons: 1. 8.4' to 9.4' 2. 14.4' to 15.4' 3. 19.0' to 20.0'
					5. Core Boxes: 1. 7.0' to 12.8' 2. 12.8' to 20.0' 3. 20.0' to 20.6'

T. D. 20.6'

PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT Aubrey Lake HOLE NO. 816C-309

Hole No. 816C-309

DRILLING LOG Southwest Port North

PROJECT Aubrey Lake

LOCATION (Coordinates or Station) Spillway Site "F"

DRILLING AGENCY Corps of Engineers

HOLE NO. (As shown on drawing title and not numbered) 816C-309

NAME OF DRILLER Schoonover

DIRECTION OF HOLE ☐ VERTICAL ☐ INCLINED ☐ DES. FROM VEAT

THICKNESS OF OVERBURDEN 4.5'

DEPTH DRILLED INTO ROCK 10.5'

TOTAL DEPTH OF HOLE 15.0'

DATE HOLE STARTED 10 Dec. 1975 COMPLETED 10 Dec. 1975

ELEVATION TOP OF HOLE 100

TOTAL CORE RECOVERY FOR BORING 100

SIGNATURE OF INSPECTOR *James H. Logan*

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY (%)	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, amount of overburden, etc., if significant)
0.0' to 4.5'			CLAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, becoming more moist from 2.0' to 4.5', slightly calcareous.	No Sample		1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation.
4.5' to 9.9'			CLAY-SHALE - appears to be reworked shale, rust brown, marbled gray, soft, abundant calcareous nodules throughout, moist. Clay-shale is gravelly (mostly ferrous nodules) throughout this interval. Calcareous from 9.3' to 9.9'.	Actual Loss 1.4'		2. Drilling: 8" auger to 7.0'; 6" core to total depth of 15.0'.
9.9' to 11.3'			Core lost due to grinding.			3. Jars: A. 2.0' to 4.5' B. 4.5' to 7.0'
11.3' to 15.0'			SHALE AND SANDSTONE - shale is tan, to grayish tan, soft, silty, finely sandy and is interrupted by tan very fine grained sandstone at the following intervals: 11.8' to 12.0'; 12.5' to 13.3'. Ironstone noted from 13.3' to 13.4'. Shale and sandstone is non-calcareous.			4. Cartons: 1. 7.5' to 8.5' 2. 14.0' to 15.0'
						5. Core Box: 1. 7.0' to 15.0'

T. D. 15.0'

PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT Aubrey Lake HOLE NO. 816C-309

DRILL

PROJECT

LOCATION

DRILLING

HOLE NO. and Date

NAME OF

DIRECTION

THICKNESS

DEPTH

TOTAL

ELEVATION

ENG FORM 1836 MAR 71

Division		Installation		Hole No.		Sheet	
Southwestern		Fort Worth		816C-309		1 of 1 SHEETS	
PROJECT: Aubrey Lake							
1. LOCATION: Spillway Site "F"							
2. DRILLING AGENCY: Corps of Engineers							
3. HOLE NO. (As shown on drawing title and site number): 816C-309							
4. NAME OF DRILLER: Schoonover							
5. DATE HOLE: 10 Dec. 1975							
6. ELEVATION TOP OF HOLE: 100							
7. ELEVATION TOP OF HOLE: 100							
8. TOTAL CORE RECOVERY FOR BORING: 100							
9. SIGNATURE OF INSPECTOR: <i>H. J. L. L. L.</i>							
10. SIGNATURE OF INSPECTOR: <i>H. J. L. L. L.</i>							
11. CLASSIFICATION OF MATERIALS (Description)							
12. CORE RECOVERY (Actual Loss)							
13. REMARKS							
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Division		Installation		Hole No.		Sheet	
Southwestern		Fort Worth		8A-310		1 of 1 SHEETS	
PROJECT: Aubrey Dam							
1. LOCATION: Outlet Works							
2. DRILLING AGENCY: USCE							
3. HOLE NO. (As shown on drawing title and site number): 8A-310							
4. NAME OF DRILLER: Mullins							
5. DATE HOLE: 19 Sep 80							
6. ELEVATION TOP OF HOLE: 19 Sep 80							
7. ELEVATION TOP OF HOLE: 19 Sep 80							
8. TOTAL CORE RECOVERY FOR BORING: 100							
9. SIGNATURE OF INSPECTOR: <i>J. L. L. L.</i>							
10. SIGNATURE OF INSPECTOR: <i>J. L. L. L.</i>							
11. CLASSIFICATION OF MATERIALS (Description)							
12. CORE RECOVERY (Actual Loss)							
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RECORD DRAWING-WORK AS BUILT

SYM	NO	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY: RAY ROBERTS LAKE				
ELM FORK, TRINITY RIVER, TEXAS				
EMBANKMENT, SPILLWAY AND				
OUTLET WORKS				
LOGS OF BORINGS				
8A6C-307, 8A6C-308, 8A6C-309 AND 8A-310				
SUBMITTED BY: INVITATION NO. DACW63-B2-C-0025 DATE MAR. 1982				
ENGINEER: CONTRACT NO. DACW63-82-C-0083				
DRAWING NUMBER: SHEET NO. 34				

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A-311

DRILLING LOG		DIVISION Southwestern		INSTALLATION Fort Worth		SHEET 1 OF 4 SHEETS	
1. PROJECT Aubrey Dam				16. SIZE AND TYPE OF BIT BUCKET			
2. LOCATION (County, Range, Section) Outlet Works				17. DATUM FOR ELEVATION (NGVD, TBM, etc.) Falling 1500			
3. DRILLING AGENCY USCE				18. MANUFACTURER'S DESIGNATION OF DRILL Falling 1500			
4. HOLE NO. (As shown on drawing title and this number) 8A-311				19. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN DISTURBED 5 UNDISTURBED 0			
5. NAME OF DRILLER Mullina				20. TOTAL NUMBER CORE BOXES ---			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED --- DEG. FROM VERT.				21. DATE HOLE STARTED 5 COMPLETED 8			
7. THICKNESS OF OVERBURDEN 13.8				22. ELEVATION TOP OF HOLE 573.6 (offset elev)			
8. DEPTH DRILLED INTO ROCK 2.2				23. TOTAL CORE RECOVERY FOR BORING ---			
9. TOTAL DEPTH OF HOLE 16.0				24. ELEVATION GROUND WATER ---			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SCORE RECOVERY NO.	BOX OR SAMPLE NO.	REMARKS (Disturb from, water loss, depth of weathering, etc., if significant)	
			0.0' to 1.0'		A	1. Hole was dry after completion. 16 hour check, level was 15.4'	
			SILT, medium stiff, dry, low plasticity, dark brown.		B		
			1.0' to 6.7'			2. Jars:	
			CLAY, low plasticity, medium stiff, silty, sandy, slightly moist, red and tan.			A. 0.0 to 1.0 B. 1.0 to 6.7 C. 6.7 to 12.0 D. 12.0 to 13.8 E. 13.8 to 16.0	
			6.7' to 12.0'		C	3. Hole offset 30 ft. on a bearing of N 90° E.	
			CLAY, low plasticity, medium stiff, sandy, moist, tan and gray.				
			12.0' to 13.8'		D		
			SAND, gravelly, medium dense, clayey, tan and brown.		E		
			13.8' to 16.0'				
			SHALE, reworked in upper 0.3', unweathered dark gray.				
			T.D. - 16.0' -				

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT Aubrey Dam HOLE NO. 8A-311

Hole No. 8A-312

DRILLING LOG		DIVISION Southwestern		INSTALLATION Fort Worth		SHEET 1 OF 4 SHEETS	
1. PROJECT Aubrey Dam				16. SIZE AND TYPE OF BIT BUCKET			
2. LOCATION (County, Range, Section) Outlet Works				17. DATUM FOR ELEVATION (NGVD, TBM, etc.) Falling 1500			
3. DRILLING AGENCY USCE				18. MANUFACTURER'S DESIGNATION OF DRILL Falling 1500			
4. HOLE NO. (As shown on drawing title and this number) 8A-312				19. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN DISTURBED 6 UNDISTURBED 0			
5. NAME OF DRILLER Mullina				20. TOTAL NUMBER CORE BOXES ---			
6. DIRECTION OF HOLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED --- DEG. FROM VERT.				21. DATE HOLE STARTED 19 Sep 80 COMPLETED 19 Sep 80			
7. THICKNESS OF OVERBURDEN 15.0				22. ELEVATION TOP OF HOLE 56			
8. DEPTH DRILLED INTO ROCK 0.5				23. TOTAL CORE RECOVERY FOR BORING ---			
9. TOTAL DEPTH OF HOLE 15.5				24. ELEVATION GROUND WATER ---			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SCORE RECOVERY NO.	BOX OR SAMPLE NO.	REMARKS (Disturb from, water loss, depth of weathering, etc., if significant)	
			0.0' to 2.0'		A	1. Aug rated 24 ho. was 81	
			SAND, fine grained, medium dense, dry, brown.		B		
			2.0' to 12.0'			2. Jars:	
			GRAVEL, coarse to fine grained, medium dense, moist from 2' to 3', damp from 5' to 7', becomes saturated at 7'.			A. 0. B. 2. C. 5. D. 7. E. 12. F. 15	
			12.0' to 15.0'		D	3. Ho. on : N80° E. 15'	
			CLAY, medium plasticity, very stiff, moist, gravelly, brown.				
			15.0' to 15.5'		E		
			SHALE, unweathered, soft, dark gray.				
			T.D. - 15.5' -				

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT Aubrey Lake HOLE NO. 8A-312

Hole No. BA-312

INSTALLATION: Fort Worth

PROJECT: 8A 312

DATE: 19 Sep 80

ELEVATION: 567.9

DEPTH: 15.5

CLASSIFICATION OF MATERIALS (Description):

0.0' to 2.0' SAND, fine grained, medium dense, dry, brown.

2.0' to 12.0' GRAVEL, coarse to fine grained, medium dense, moist from 2' to 5', damp from 5' to 7', becomes saturated at 7'.

12.0' to 15.0' CLAY, medium plasticity, very stiff, moist, gravelly, brown.

15.0' to 15.5' SHALE, unweathered, soft, dark gray.

T.D. - 15.5'

REMARKS: 1. Augered into saturated gravel at 7'. 24 hour check - level was same. 2. Jars: A. 0.0 to 2.0 B. 2.0 to 3.0 C. 3.0 to 7.0 D. 7.0 to 12.0 E. 1. ? to 15.0 F. 15.0 to 15.5 3. Hole offset 80. ft. on a bearing of N80°E due to inaccessible terrain. Elevation was obtained with level.

Hole No. GDC-313

INSTALLATION: FWD

PROJECT: Aubrey Dam

DATE: 29 Aug 80

ELEVATION: 567.9

DEPTH: 15.5

CLASSIFICATION OF MATERIALS (Description):

0.0' to 16.0' CLAY 0.0' to 4.0', low plasticity, hard, dry, brown, silty. 4.0' to 6.5', med. plast., v. stiff, dry, strong brown, sl. sandy. 6.5' to 16.0', med./low plast., stiff, dry, yellowish brown, silty, lime nodules and sand below 15.0'.

16.0' to 21.5' SAND, fine grained, clayey & silty seams within, sl. gravelly, dry, strong brown, & yellow brown w/ light gray.

21.5' to 29.5' GRAVEL, coarse to fine & round, damp to moist? (drill fluid still in hole), strong brn. clayey, sandy.

29.5' to 62.9' CLAYSHALE, unweath., dk. gray, soft to mod. soft (R. classif) massive, silty w/ interbeds of thin silty & sandy seams @ 10-12 degrees. Several med. hard SANDSTONE seams as indicated below: 45.6-45.9 49.6 50.9 50.4 52.1 57.0 57.3 61.2 61.4 64.1 64.4 64.9 65.0 66.7 66.8

Highly fossilif. zone from 69.9 to 70.4 (ctn. #7).

Structural features as follows: 43.4 open fract. 47.1 " " 51.3 " " 64.2 " "

REMARKS: 1. Bailed hole to near T.D., 24 hr. check, water @ 23.5'. 2. Jars: A. 0.0 to 4.0 B. 4.0 to 5.0 C. 5.0 to 5.5 D. 7.0 E. 11.0 to 13.0 F. 11.0 to 13.0 G. 11.0 to 13.0 H. 15.0 I. 17.0 J. 18.0 K. 20.0 to 21.5 L. 20.0 to 26.3 M. 26.3 to 29.5 N. 29.5 to 32.0 3. Denison cans: 1. 5.5 to 7.0 2. 7.0 to 9.0 3. 9.0 to 11.0 4. 13.0 to 15.0 5. 15.0 to 17.0 6. 18.0 to 20.0 4. Cartons: 1-35.3 to 36.3 2-41.9 to 42.9 3-45.6 to 46.3 4-50.5 to 51.3 5-57.3 to 58.3 6-63.8 to 66.8 7-69.9 to 70.6 8-75.3 to 76.3 9-81.9 to 82.9 5. Drillings: 0.0' to 5.0', 8" auger, Set 5.0' casing 5.0' to 21.5', 6" denison casing as drill progressed 21.5' to 32.0', 8" auger

Hole No. AUB

INSTALLATION: FWD

PROJECT: AUB

DATE: 10 Sep 80

ELEVATION: 567.9

DEPTH: 15.5

CLASSIFICATION OF MATERIALS (Description):

0.0' to 16.0' CLAY 0.0' to 4.0', low plasticity, hard, dry, brown, silty. 4.0' to 6.5', med. plast., v. stiff, dry, strong brown, sl. sandy. 6.5' to 16.0', med./low plast., stiff, dry, yellowish brown, silty, lime nodules and sand below 15.0'.

16.0' to 21.5' SAND, fine grained, clayey & silty seams within, sl. gravelly, dry, strong brown, & yellow brown w/ light gray.

21.5' to 29.5' GRAVEL, coarse to fine & round, damp to moist? (drill fluid still in hole), strong brn. clayey, sandy.

29.5' to 62.9' CLAYSHALE, unweath., dk. gray, soft to mod. soft (R. classif) massive, silty w/ interbeds of thin silty & sandy seams @ 10-12 degrees. Several med. hard SANDSTONE seams as indicated below: 45.6-45.9 49.6 50.9 50.4 52.1 57.0 57.3 61.2 61.4 64.1 64.4 64.9 65.0 66.7 66.8

Highly fossilif. zone from 69.9 to 70.4 (ctn. #7).

Structural features as follows: 43.4 open fract. 47.1 " " 51.3 " " 64.2 " "

REMARKS: 1. Bailed hole to near T.D., 24 hr. check, water @ 23.5'. 2. Jars: A. 0.0 to 4.0 B. 4.0 to 5.0 C. 5.0 to 5.5 D. 7.0 E. 11.0 to 13.0 F. 11.0 to 13.0 G. 11.0 to 13.0 H. 15.0 I. 17.0 J. 18.0 K. 20.0 to 21.5 L. 20.0 to 26.3 M. 26.3 to 29.5 N. 29.5 to 32.0 3. Denison cans: 1. 5.5 to 7.0 2. 7.0 to 9.0 3. 9.0 to 11.0 4. 13.0 to 15.0 5. 15.0 to 17.0 6. 18.0 to 20.0 4. Cartons: 1-35.3 to 36.3 2-41.9 to 42.9 3-45.6 to 46.3 4-50.5 to 51.3 5-57.3 to 58.3 6-63.8 to 66.8 7-69.9 to 70.6 8-75.3 to 76.3 9-81.9 to 82.9 5. Drillings: 0.0' to 5.0', 8" auger, Set 5.0' casing 5.0' to 21.5', 6" denison casing as drill progressed 21.5' to 32.0', 8" auger

RECORD DRAWING-WORK AS BUILT

6DC-313

- T.D. 83.1 -

SYM	QC NO.	ACTION	DATE	DESCRIPTION OF REVISION	
U.S ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY: ----- 	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT, SPILLWAY AND OUTLET WORKS LOGS OF BORINGS 8A-311, 8A-312, 6DC-313				
DRAWN BY: ----- 					
REVIEWED BY: ----- 					
SUBMITTED BY ENGINEER -----	INVITATION NO. DACW63-82B0025		DATE MAR, 1982		
	CONTRACT NO. DACW63-82-C-0093		SEQUENCE NO.		
	DRAWING NUMBER		SHEET NO. OF		75

TO ACCOMPANY FOUNDATION REPORT

Mile No 50.312

DRILLING LOG		PROJECT		HOLE NO	
1. PROJECT: Aubrey Dam		2. LOCATION: 3300 ft. from dam		3. HOLE NO: 50.312	
4. OUTLET WORKS		5. DATE: 10 Sep 80		6. TIME: 10:00	
7. WELL NO: 600-314		8. WELL DEPTH: 89.0		9. WELL TYPE: 15 Sep 80	
10. DIRECTION OF HOLE: 10 Sep 80		11. DATE HOLE: 10 Sep 80		12. TIME HOLE: 10 Sep 80	
13. THICKNESS OF OVERBURDEN: 18.5		14. TOTAL CORE RECOVERY: 100%		15. TOTAL CORE RECOVERY: 100%	
16. DEPTH OF CORE: 70.5		17. TOTAL CORE RECOVERY: 100%		18. TOTAL CORE RECOVERY: 100%	
19. TOTAL CORE RECOVERY: 89.0		20. TOTAL CORE RECOVERY: 100%		21. TOTAL CORE RECOVERY: 100%	
ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS	LOG	REMARKS	REMARKS
0.0'	2.5'	CLAY, low plasticity, hard, silty, dark brown.	1	1. After completion, hole was bailed to T.D. 24 hour check, level was 39.3	
2.5'	3.5'	CLAY, medium plasticity, hard, moist, brown	2	2. Jars:	
3.5'	13.5'	CLAY (CALICHE), medium to low plasticity, hard, slightly moist, silty, calcareous nodules, brown.	3	A. 0.0 to 2.5	
13.5'	15.0'	GRAVEL, well-graded, medium dense, clayey, brown.	4	B. @ 4.5	
15.0'	18.5'	CLAY (CALICHE), low plasticity, hard, moist, calcareous nodules, light brown.	5	C. @ 5.5	
18.5'	24.5'	SHALE, highly weathered to 22.0', partly weathered from 22.0' to 24.5', soft, numerous fractures to 22.0', tan and gray.	6	D. @ 8.5	
24.5'	89.0'	SHALE, unweathered, moderately hard, massive, gray, with interbeds of moderate hard SANDSTONE as shown below:	7	E. @ 10.5	
			8	F. @ 12.5	
			9	G. @ 13.5	
			10		
			11		
			12		
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			14		
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			100		

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: Aubrey Dam

HOLE NO: 600-312

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	LOG	REMARKS
40.0'	40.0'			41.0	5
44.3'	44.3'		SANDSTONE	G1	6
44.7'	44.7'		SANDSTONE	03	7
44.5'	44.5'		SANDSTONE	405	8
44.9'	44.9'		SANDSTONE	600	9
44.9'	44.9'		SANDSTONE	585	10
44.9'	44.9'		SANDSTONE	605	11
44.9'	44.9'		SANDSTONE	570	12
44.9'	44.9'		SANDSTONE	G1	13
44.9'	44.9'		SANDSTONE	0.1	14
44.9'	44.9'		SANDSTONE	615	15
44.9'	44.9'		SANDSTONE	G1	16
44.9'	44.9'		SANDSTONE	0.4	17
44.9'	44.9'		SANDSTONE	655	18
44.9'	44.9'		SANDSTONE	L	19
44.9'	44.9'		SANDSTONE	0.0	20
44.9'	44.9'		SANDSTONE	695	21
44.9'	44.9'		SANDSTONE	L	22
44.9'	44.9'		SANDSTONE	0.7	23
44.9'	44.9'		SANDSTONE	735	24
44.9'	44.9'		SANDSTONE	G1	25
44.9'	44.9'		SANDSTONE	0.1	26
44.9'	44.9'		SANDSTONE	780	27
44.9'	44.9'		SANDSTONE	810	28
44.9'	44.9'		SANDSTONE	G1	29
44.9'	44.9'		SANDSTONE	0.2	30
44.9'	44.9'		SANDSTONE	860	31
44.9'	44.9'		SANDSTONE	4.03	32
44.9'	44.9'		SANDSTONE	890	33
44.9'	44.9'		SANDSTONE		34
44.9'	44.9'		SANDSTONE		35
44.9'	44.9'		SANDSTONE		36
44.9'	44.9'		SANDSTONE		37
44.9'	44.9'		SANDSTONE		38
44.9'	44.9'		SANDSTONE		39
44.9'	44.9'		SANDSTONE		40
44.9'	44.9'		SANDSTONE		41
44.9'	44.9'		SANDSTONE		42
44.9'	44.9'		SANDSTONE		43
44.9'	44.9'		SANDSTONE		44
44.9'	44.9'		SANDSTONE		45
44.9'	44.9'		SANDSTONE		46
44.9'	44.9'		SANDSTONE		47
44.9'	44.9'		SANDSTONE		48
44.9'	44.9'		SANDSTONE		49
44.9'	44.9'		SANDSTONE		50
44.9'	44.9'		SANDSTONE		51
44.9'	44.9'		SANDSTONE		52
44.9'	44.9'		SANDSTONE		53
44.9'	44.9'		SANDSTONE		54
44.9'	44.9'		SANDSTONE		55
44.9'	44.9'		SANDSTONE		56
44.9'	44.9'		SANDSTONE		57
44.9'	44.9'		SANDSTONE		58
44.9'	44.9'		SANDSTONE		59
44.9'	44.9'		SANDSTONE		60
44.9'	44.9'		SANDSTONE		61
44.9'	44.9'		SANDSTONE		62
44.9'	44.9'		SANDSTONE		63
44.9'	44.9'		SANDSTONE		64
44.9'	44.9'		SANDSTONE		65
44.9'	44.9'		SANDSTONE		66
44.9'	44.9'		SANDSTONE		67
44.9'	44.9'		SANDSTONE		68
44.9'	44.9'		SANDSTONE		69
44.9'	44.9'		SANDSTONE		70
44.9'	44.9'		SANDSTONE		71
44.9'	44.9'		SANDSTONE		72
44.9'	44.9'		SANDSTONE		73
44.9'	44.9'		SANDSTONE		74
44.9'	44.9'		SANDSTONE		75
44.9'	44.9'		SANDSTONE		76
44.9'	44.9'		SANDSTONE		77
44.9'	44.9'		SANDSTONE		78
44.9'	44.9'		SANDSTONE		79
44.9'	44.9'		SANDSTONE		80
44.9'	44.9'		SANDSTONE		81
44.9'	44.9'		SANDSTONE		82
44.9'	44.9'		SANDSTONE		83
44.9'	44.9'		SANDSTONE		84
44.9'	44.9'		SANDSTONE		85
44.9'	44.9'		SANDSTONE		86
44.9'	44.9'		SANDSTONE		87
44.9'	44.9'		SANDSTONE		88
44.9'	44.9'		SANDSTONE		89
44.9'	44.9'		SANDSTONE		90
44.9'	44.9'		SANDSTONE		91
44.9'	44.9'		SANDSTONE		92
44.9'	44.9'		SANDSTONE		93
44.9'	44.9'		SANDSTONE		94
44.9'	44.9'		SANDSTONE		95
44.9'	44.9'		SANDSTONE		96
44.9'	44.9'		SANDSTONE		97
44.9'	44.9'		SANDSTONE		98
44.9'	44.9'		SANDSTONE		99
44.9'	44.9'		SANDSTONE		100

DRILLING LOG		Southwestern		INSTALLATION Fort Worth		Hole No. 4DC-315		SHEET A OF 3 SHEETS	
PROJECT Aubrey Dam				10 SIZE AND TYPE OF BIT Busher, d bb ¹ , core hh ¹					
LOCATION (reference to station) Outlet Works				11 DATE FOR ELEVATION TO BE TAKEN Falling 1500					
DRILLING AGENCY USCE				12 MANUFACTURER'S IDENTIFICATION OF DRILL Falling 1500					
HOLE NO Tag shown on drawing title and file number 6DC-315				13 TOTAL NO OF OVER BURDEN SAMPLES TAKEN 8		UNDISTURBED 2			
NAME OF DRILLER Mullins				14 TOTAL NUMBER CORE BORES 14		ELEVATION GROUND WATER 88			
DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG FROM VERT				15 DATE HOLE 13 Sept 80		18 Sept 80			
THICKNESS OF OVERBURDEN 18.5				17 ELEVATION TOP OF HOLE					
DEPTH DRILLED INTO ROCK 76.3				18 TOTAL CORE RECOVERY FOR BORING 98.4					
TOTAL DEPTH OF HOLE 94.8				19 SIGNATURE OF DIRECTOR <i>L.P. ...</i>					
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	CORE NO. e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)			
			0.0' to 2.5' CLAY , low plasticity, hard, dry, brown.		A	** 1. After completion, hole was bailed to T.D. 24 hr check, water level was 31.5'			
			2.5' to 6.5' CLAY , medium plasticity, very stiff, slightly moist, brown.		B				
			6.5' to 18.5' CLAY , medium plasticity, hard, moist, gravelly except from 17.5' to 18.5', calcareous nodules.		D	2. Jars: A. 0.0 to 2.5 * B. 4.5 * C. @ 6.5 D. 6.5 to 11.5 E. 11.5 to 12.5 F. 12.5 to 17.5 G. 17.5 to 18.5 H. 18.5 to 20.5 * taken from denison shoe.			
			18.5' to 30.0' SAND , moderately soft, weathered as shown below: 18.5' to 20.5' - unweathered, 20.5' to 25.4' - highly weathered, soft, tan. 25.4' to 30.0' - slight weathered, gray and tan		E				
			30.0' to 94.8' SAND , moderately soft, unweathered, unfactured, massive, gray		F	3. Denison cans: 1. 2.5 to 4.5 2. 4.5 to 6.5 4. Carbonate: 1. 22.5 to 23.6 2. 25.7 to 27.7 3. 30.0 to 31.0 4. 35.4 to 36.4 5. 38.9 to 39.9 6. 44.5 to 45.5 7. 51.2 to 52.2 8. 56.0 to 57.0 9. 59.8 to 60.6 10. 65.4 to 66.4 11. 70.6 to 71.6 12. 77.0 to 77.8 13. 80.8 to 81.8 14. 85.8 to 86.8 15. 90.0 to 90.9 16. 93.8 to 94.8			
			Interbeds of hard SANDSTONE at the following depths: 21.0' to 21.6' 28.9' to 40.3' 42.7' to 43.0' 45.7' to 46.0' 49.3' to 50.0' 57.5' to 58.3' 58.6' - very fossiliferous.		G				
					H	5. Drilling methods: 0.0 to 2.5 - auger 2.5 to 6.5 - denison bb ¹ 6.5 to 20.5 - auger 20.5 to 94.8 - core bb ¹			
					I				
					J	6. Base of weathering at 30'			
					K				
					L				
					M				
					N				
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					P				
					Q				
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Drilling Log Form 1836 (Rev. 1-62) Southwestern

Project: AUBREY DAM

Location: ELM FORK, TRINITY RIVER, TEXAS

Outlet Works

USCE

6DC-315

10. SIZE AND TYPE OF BIT: 8" auger, d bb'1, core bb'1

11. DATE FOR ELEVATION: 13 Sept 80

12. MANUFACTURER'S DESIGNATION OF CASE: Failing 1500

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 8

14. TOTAL NUMBER CORE HOLES: 16

15. ELEVATION GROUND WATER: 98.4

16. DATE HOLE: 13 Sept 80

17. ELEVATION TOP OF HOLE: 98.4

18. TOTAL CORE RECOVERY FOR BORING: 98.4

19. CRATING: 2 P. 100 lb

CLASSIFICATION OF MATERIALS (Description)

0.0' to 2.5' CLAY, low plasticity, hard, dry, brown.

2.5' to 6.5' CLAY, medium plasticity, very stiff, slightly moist, brown.

6.5' to 18.5' CLAY, medium plasticity, hard, moist, gravelly except from 17.5' to 18.5', calcareous nodules.

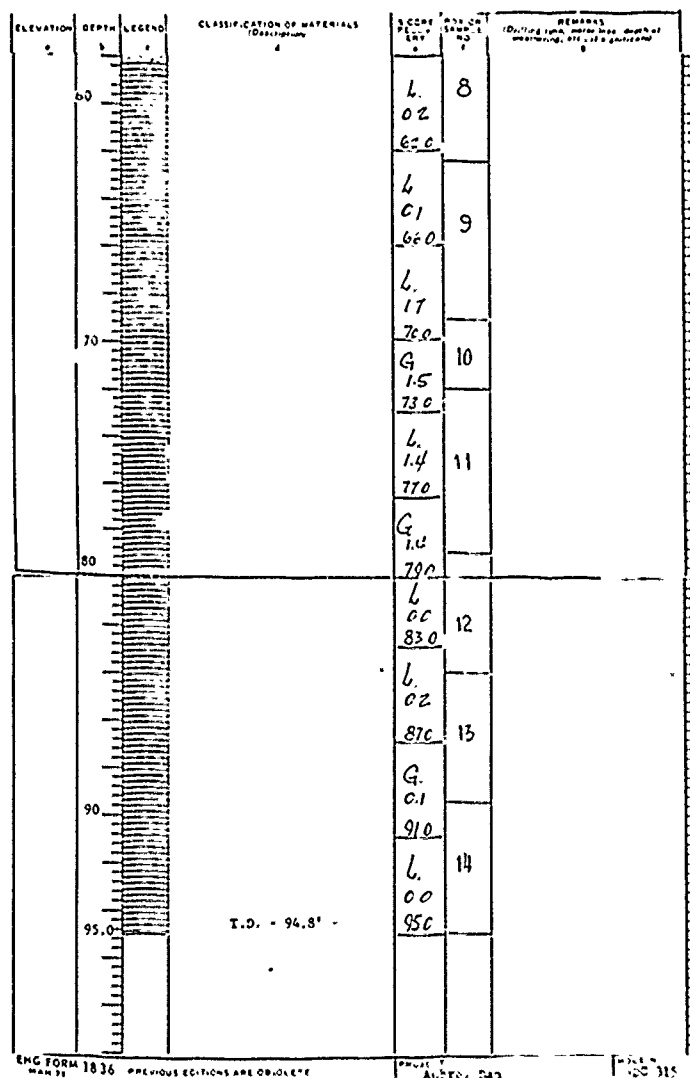
18.5' to 30.0' SHALE, moderately soft, weathered as shown below: 18.5' to 20.5' - unweathered; 20.5' to 25.4' - highly weathered, soft, tan; 25.4' to 30.0' - slightly weathered, gray and tan.

30.0' to 94.8' SHALE, moderately soft, unweathered, unjointed, unfractured, massive, gray.

Interbeds of hard SANDSTONE at the following depths: 21.0' to 21.4'; 28.9' to 40.2'; 42.7' to 43.0'; 45.7' to 45.9'; 49.3' to 50.0'; 57.3' to 58.4'.

58.4' - very fossiliferous.

REMARKS: 1. After completion, hole was bailed to T.D. 24 hr check, water level was 31.5'. 2. Jars: A. 0.0 to 2.5; B. 4.5; C. 6.5; D. 6.5 to 11.5; E. 11.5 to 12.5; F. 12.5 to 17.5; G. 17.5 to 18.5; H. 18.5 to 20.5; taken from Denison shoe. 3. Denison cans: 1. 2.5 to 4.5; 2. 4.5 to 6.5. 4. Cartons: 1. 22.5 to 23.6; 2. 25.7 to 27.7; 3. 30.0 to 31.0; 4. 35.4 to 36.4; 5. 38.9 to 39.9; 6. 44.5 to 45.5; 7. 51.2 to 52.2; 8. 56.0 to 57.0; 9. 59.8 to 60.6; 10. 65.4 to 66.4; 11. 70.6 to 71.6; 12. 77.0 to 77.8; 13. 80.8 to 81.8; 14. 85.8 to 86.8; 15. 90.0 to 90.9; 16. 93.8 to 94.8. 5. Drilling methods: 0.0 to 2.5 - auger; 2.5 to 6.5 - Denison bb'1; 6.5 to 20.5 - auger; 20.5 to 94.8 - core bb'1. 6. Base of weathering at 30'.



RECORD DRAWING-WORK AS FILED

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: RAY ROBERTS LAKE

DRAWN BY: ELM FORK, TRINITY RIVER, TEXAS

REVIEWED BY: EMBANKMENT, SPILLWAY AND

LOGS OF BORINGS

6 DC-314 AND 6DC-315

DATE: MAR. 1982

CONTRACT NO. DACHES-82 B-0023

DESIGN NO. 1000

SHEET NO. 36

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A-316

DRILLING LOG		Southwestern		Installation		Port Worth		SHEET	
PROJECT		Aubrey Dam		NO. AND TYPE OF BIT		11. DATE FOR ELEVATION INFORMATION IN LOG		OF SHEETS	
LOCATION		Outlet Works		12. MANUFACTURER'S DESIGNATION OF DRILL		Falling 1500			
DRILLING AGENCY		USCE		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		7		0	
HOLE NO. (As shown on drawing into and into mud log)		8A-316		14. TOTAL NUMBER CORE BORES		-		-	
NAME OF DRILLER		Mullins		15. ELEVATION GROUND WATER		gpg			
DIRECTION OF HOLE		<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		16. DATE HOLE		STARTED		COMPLETED	
						19 Sep 80		19 Sep 80	
THICKNESS OF OVERBURDEN		--		17. ELEVATION TOP OF HOLE					
DEPTH DRILLED INTO ROCK		--		18. TOTAL CORE RECOVERY FOR BORING		1			
TOTAL DEPTH OF HOLE		35.0		19. SIGNATURE OF DRILLER		[Signature]			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Describe and)	NO. OF CORE RECOVERED	NO. OF SAMPLES NO.	REMARKS (Drilling time, water level, depth of penetration, etc., if significant)			
			0.0' to 11.0'			1. After completion, water level in hole was 12.4'. 16 hour check - level was 12.4'			
			CLAY, medium to high plasticity, stiff, moist black and white.		A				
			11.0' to 23.0'		B	2. Jars:			
			CLAY, high plasticity, medium stiff, moist to 16', very moist from 16' to 23', scattered gravel, tan and gray.			A. 0.0 to 5.0 B. 5.0 to 11.0 C. 11.0 to 16.0 D. 16.0 to 21.0 E. 21.0 to 23.0 F. 23.0 to 29.0 G. 29.0 to 35.0			
			23.0' to 29.0'		C				
			CLAY, medium plasticity, soft, wet, sandy, gray- green.						
			29.0' to 35.0'		D				
			CLAY, medium plasticity, soft, wet, sandy, gray green.						
			T.D. = 35.0'		E				
					F				
					G				

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT Aubrey Dam HOLE NO. 8A-316

DRILLING LOG		SWO		Installation		Port Worth		SHEET	
PROJECT		Aubrey Dam - Outlet Works		NO. AND TYPE OF BIT		11. DATE FOR ELEVATION INFORMATION IN LOG		OF SHEETS	
LOCATION		STA 2 +10		12. MANUFACTURER'S DESIGNATION OF DRILL		Falling 1500			
DRILLING AGENCY		USCE		13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN		7		0	
HOLE NO. (As shown on drawing into and into mud log)		8A-316		14. TOTAL NUMBER CORE BORES		-		-	
NAME OF DRILLER		Mullins		15. ELEVATION GROUND WATER		gpg			
DIRECTION OF HOLE		<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		16. DATE HOLE		STARTED		COMPLETED	
						19 Sep 80		19 Sep 80	
THICKNESS OF OVERBURDEN		27.7'		17. ELEVATION TOP OF HOLE					
DEPTH DRILLED INTO ROCK		14.8'		18. TOTAL CORE RECOVERY FOR BORING		1			
TOTAL DEPTH OF HOLE		104.5'		19. SIGNATURE OF DRILLER		[Signature]			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Describe and)	NO. OF CORE RECOVERED	NO. OF SAMPLES NO.	REMARKS (Drilling time, water level, depth of penetration, etc., if significant)			
			0.0' to 13.5'			CLAY:			
			0.0-13' MED/HIGH PLASTICITY, STIFF, MOIST; DR. BRN, SANDY, WHE. 1.3'-5.6' 25' ABOVE, COLOR GRADES TO 20.1'						
			5.6-13.5' LOW PLASTICITY, HARD; DRY, REDDISH YELLOW; SANDY & SILTY, VERY SANDY AFTER 10 G						
			13.5' to 16.1'			GRAVEL: COARSE TO FINE, DRY; STRONG BEN VERY SANDY, CLAYEY			
			16.1' to 20.2'			SAND: FINE-GRAINED; DRY REDDISH YELLOW; SLT. GRAVELLY			
			20.2' to 27.7'			GRAVEL: COARSE TO FINE; DAMP; VERY SANDY STRONG BEN TO BEN BY 24.2'			
			27.7' to 43.1'			SHALE:			
			27.7-28.3' WEATHERED; GRAY; MASSIVE; SAND IS OLIVE, VERY FRAGILE EVENLY CEMENTED						
			28.3-43.1' UNWEATHERED; DR. GRAY, MOD. SOFT; MASSIVE; SILTY; NUMEROUS THIN (0.1" THICK) SAND- STONE SEAMS SCAT- TERED EXCEPT WHERE NOTED:						
			@ 30.0'						
			20.3'-20.5'						
			@ 31.5'						
			33.3'-34.2' VERY SILTY						

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT Aubrey Dam HOLE NO. 8A-316

Hole No. BALC-358

DRILLING LOG		SWD		INSTALLATION		FWD		SHEET 1 OF 3 SHEETS	
PROJECT: AUBREY DAM - OUTLET WORKS		10. SEE AND TYPE OF BIT: AUGER 6" COCE		11. LOCATION (Compass or Station): STA 25+10		12. MANUFACTURER'S DESIGNATION OF HILL: FAILING 1500		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 8	
1. LOCATION (Compass or Station): STA 25+10		2. DRILLING AGENCY: USCE-C		3. HOLE NO. (As shown on drawing sheet and this number): BALC-358		4. NAME OF DRILLER: HULLINS		5. DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED	
6. THICKNESS OF OVERBURDEN: 27.7'		7. DEPTH DRILLED INTO ROCK: 74.8'		8. TOTAL DEPTH OF HOLE: 104.5'		9. ELEVATION OF GROUND WATER: SEE REMARKS		10. DATE HOLE STARTED: 9 FEB 81	
11. ELEVATION TOP OF HOLE: 104.5'		12. TOTAL CORE RECOVERY FOR BORING: 99.3'		13. SIGNATURE OF INSPECTOR: MEVEY		14. DATE HOLE COMPLETED: 13 FEB 81		15. REMARKS: (Drilling time, water used, depth of overburden, etc., if significant)	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1. CORE RECON. NO.	2. BOX OR SAMPLE NO.	REMARKS			
0.0'	0.0'		0.0' to 13.5' CLAY			1. WATER LEVEL: 24 INCHES AFTER BAILING WATER LEVEL WAS @ 27.1'			
13.5'	13.5'		13.5' to 16.1' MED/HIGH PLASTICITY, STIFF, MOIST, Dk. BRN, SANDY LIME GRADES TO BEN			2. JAR SAMPLES: A: 0.0' - 1.3' B: 1.3' - 5.6' C: 5.6' - 10.6' D: 10.6' - 13.5' E: 13.5' - 16.1' F: 16.1' - 20.2' G: 20.2' - 24.2' H: 24.2' - 27.7' I: 27.7' - 28.3' J: 28.3' - 29.0'			
16.1'	16.1'		16.1' to 20.2' GRAVEL COARSE TO FINE, DRY; STRONG BRN, VERY SANDY, CLAYEY			3. DRILLING: AUGER 0.0' - 29.0' SET 30" OF CASING. CLEANED HOLE OUT TO 30.0'. 6" CORE 30.0' - 105.0'.			
20.2'	20.2'		20.2' to 27.7' SAND FINE-GRAINED; DRY, REDDISH YELLOW; SLI GRAVELLY			4. E-LOGGING: BORING DRILLED 15' SOUTH OF BALC-358 & WAS C-LOGGED.			
27.7'	27.7'		27.7' to 43.1' GRAVEL COARSE TO FINE, DAMP; VERY SANDY, STRONG BRN TO BEN BY 24.2'			5. BASE OF WEATHERING: @ 28.3'			
43.1'	43.1'		43.1' to 46.9' SHALE: 27.7' - 28.3' WEATHERED; GRAY, MASSIVE; SAND IS OLIVE, VERY FRAGILE & WEAKLY CEMENTED						
46.9'	46.9'		46.9' to 49.0' UNWEATHERED, Dk. GRAY, MOD. SOFT, MASSIVE; SILTY; NUMEROUS THIN (< 0.1" THICK) SAND-STONE SEAMS SCATTERED EXCEPT WHERE NOTED: @ 20.0' @ 20.3' - 22.2' @ 31.5' @ 33.3' - 34.2' VERY SILTY						

ENG FORM 18-36 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: AUBREY DAM HOLE NO. BALC-358

Hole No. BALC-358

DRILLING LOG		SWD		INSTALLATION		FWD		SHEET 2 OF 3 SHEETS	
PROJECT: AUBREY DAM - OUTLET WORKS		10. SEE AND TYPE OF BIT: AUGER 6" COCE		11. LOCATION (Compass or Station): STA 25+10		12. MANUFACTURER'S DESIGNATION OF HILL: FAILING 1500		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 8	
1. LOCATION (Compass or Station): STA 25+10		2. DRILLING AGENCY: USCE-C		3. HOLE NO. (As shown on drawing sheet and this number): BALC-358		4. NAME OF DRILLER: HULLINS		5. DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED	
6. THICKNESS OF OVERBURDEN: 27.7'		7. DEPTH DRILLED INTO ROCK: 74.8'		8. TOTAL DEPTH OF HOLE: 104.5'		9. ELEVATION OF GROUND WATER: SEE REMARKS		10. DATE HOLE STARTED: 9 FEB 81	
11. ELEVATION TOP OF HOLE: 104.5'		12. TOTAL CORE RECOVERY FOR BORING: 99.3'		13. SIGNATURE OF INSPECTOR: MEVEY		14. DATE HOLE COMPLETED: 13 FEB 81		15. REMARKS: (Drilling time, water used, depth of overburden, etc., if significant)	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	1. CORE RECON. NO.	2. BOX OR SAMPLE NO.	REMARKS			
0.0'	0.0'		0.0' to 13.5' CLAY			1. WATER LEVEL: 24 INCHES AFTER BAILING WATER LEVEL WAS @ 27.1'			
13.5'	13.5'		13.5' to 16.1' MED/HIGH PLASTICITY, STIFF, MOIST, Dk. BRN, SANDY LIME GRADES TO BEN			2. JAR SAMPLES: A: 0.0' - 1.3' B: 1.3' - 5.6' C: 5.6' - 10.6' D: 10.6' - 13.5' E: 13.5' - 16.1' F: 16.1' - 20.2' G: 20.2' - 24.2' H: 24.2' - 27.7' I: 27.7' - 28.3' J: 28.3' - 29.0'			
16.1'	16.1'		16.1' to 20.2' GRAVEL COARSE TO FINE, DRY; STRONG BRN, VERY SANDY, CLAYEY			3. DRILLING: AUGER 0.0' - 29.0' SET 30" OF CASING. CLEANED HOLE OUT TO 30.0'. 6" CORE 30.0' - 105.0'.			
20.2'	20.2'		20.2' to 27.7' SAND FINE-GRAINED; DRY, REDDISH YELLOW; SLI GRAVELLY			4. E-LOGGING: BORING DRILLED 15' SOUTH OF BALC-358 & WAS C-LOGGED.			
27.7'	27.7'		27.7' to 43.1' GRAVEL COARSE TO FINE, DAMP; VERY SANDY, STRONG BRN TO BEN BY 24.2'			5. BASE OF WEATHERING: @ 28.3'			
43.1'	43.1'		43.1' to 46.9' SHALE: 27.7' - 28.3' WEATHERED; GRAY, MASSIVE; SAND IS OLIVE, VERY FRAGILE & WEAKLY CEMENTED						
46.9'	46.9'		46.9' to 49.0' UNWEATHERED, Dk. GRAY, MOD. SOFT, MASSIVE; SILTY; NUMEROUS THIN (< 0.1" THICK) SAND-STONE SEAMS SCATTERED EXCEPT WHERE NOTED: @ 20.0' @ 20.3' - 22.2' @ 31.5' @ 33.3' - 34.2' VERY SILTY						
49.0'	49.0'		49.0' to 51.0' SHALEY						
51.0'	51.0'		51.0' to 52.3' SHALEY						
52.3'	52.3'		52.3' to 54.5' SHALEY						
54.5'	54.5'		54.5' to 58.5' SHALEY						
58.5'	58.5'		58.5' to 60.1' SHALEY						
60.1'	60.1'		60.1' to 61.3' SHALEY						
61.3'	61.3'		61.3' to 61.9' SHALEY						
61.9'	61.9'		61.9' to 66.3' SHALEY						
66.3'	66.3'		66.3' to 66.9' SHALEY						
66.9'	66.9'		66.9' to 69.9' SHALEY						
69.9'	69.9'		69.9' to 71.0' SHALEY						
71.0'	71.0'		71.0' to 71.9' SHALEY						
71.9'	71.9'		71.9' to 74.8' SHALEY						
74.8'	74.8'		74.8' to 77.7' SHALEY						
77.7'	77.7'		77.7' to 79.0' SHALEY						
79.0'	79.0'		79.0' to 80.0' SHALEY						
80.0'	80.0'		80.0' to 81.0' SHALEY						
81.0'	81.0'		81.0' to 82.0' SHALEY						
82.0'	82.0'		82.0' to 83.0' SHALEY						
83.0'	83.0'		83.0' to 84.0' SHALEY						
84.0'	84.0'		84.0' to 85.0' SHALEY						
85.0'	85.0'		85.0' to 86.0' SHALEY						
86.0'	86.0'		86.0' to 87.0' SHALEY						
87.0'	87.0'		87.0' to 88.0' SHALEY						
88.0'	88.0'		88.0' to 89.0' SHALEY						
89.0'	89.0'		89.0' to 90.0' SHALEY						
90.0'	90.0'		90.0' to 91.0' SHALEY						
91.0'	91.0'		91.0' to 92.0' SHALEY						
92.0'	92.0'		92.0' to 93.0' SHALEY						
93.0'	93.0'		93.0' to 94.0' SHALEY						
94.0'	94.0'		94.0' to 95.0' SHALEY						
95.0'	95.0'		95.0' to 96.0' SHALEY						
96.0'	96.0'		96.0' to 97.0' SHALEY						
97.0'	97.0'		97.0' to 98.0' SHALEY						
98.0'	98.0'		98.0' to 99.0' SHALEY						
99.0'	99.0'		99.0' to 100.0' SHALEY						

ENG FORM 18-36 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: AUBREY DAM HOLE NO. BALC-358

RECORD DOWNTOWN WORK AS BUILT[illegible]

TO ACCOMPANY FOUNDATION REPORT

H-1-N. 046C-359

DRILLING LOG		SWD		FWD		
PROJECT: AUBREY DAM - OUTLET WORKS						
LOCATION (Contiguous to Station): STA 27+20						
DRILLING AGENCY: USCE-C						
HOLE NO. (As shown on drawing sheet and site number): 046C-359						
NAME OF DRILLER: MULLINS						
DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <input type="checkbox"/> BEG FROM VERT						
THICKNESS OF OVERBURDEN: 17.0'						
DEPTH DRILLED INTO ROCK: 5.3'						
TOTAL DEPTH OF HOLE: 22.3'						
DATE MOLE STARTED: 18 FEB 81 COMPLETED: 19 FEB 81						
ELEVATION TOP OF HOLE: 100.1						
TOTAL CORE RECOVERY FOR BORING: 100%						
SIGNATURE OF INSPECTOR: MCVEY						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	3 CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water used, depth of penetration, etc., if significant)
00'	0.0'		0.0' to 17.0': CLAY: 0.0'-3.0': MED/HIGH PLASTICITY; HARD; DRY; SILTY; BRN; SANDY & SILTY 3.0'-4.9': as above; VERY STIFF; DAMP; BRN 4.9'-8.0': MED/HIGH PLASTICITY; HARD; DRY; YELLOW BRN & BRN; LIMY; SILTY & SANDY 8.0'-14.1': MED/LOW PLASTICITY; VERY STIFF; DRY; RED YELLOW; SILTY & SANDY 14.1'-17.0': as above; STIFF; DAMP		A	1. WATER LEVEL: 24 HRS AFTER BAILING WATER LEVEL WAS @ 21.4'
10'	17.0'		17.0' to 18.7' LIMESTONE: HARD; MASSIVE, WEATHER-STAINED, WHITE & YELLOW-BRN; FOSSILIFEROUS; 0.1" THICK LIMONITE SEAM @ BASE		B	
20'	18.7'		18.7' to 31.5' SHALE: 18.7'-28.9': WEATHERED; YELLOW BRN & GRAY; SOFT TO MOD. SOFT MASSIVE, SCAT. THIN SILT & SAND SEAMS, SLT TO NON-CALC 18.8'-19.1': MOD. HARD & MOD. CEMENTED SANDSTONE SEAMS 25.7'-27.2': VERY SANDY ZONE 27.2'-27.7': HARD LIMONITE SEAM 27.7'-28.9': THIN VERY SHELLY & SANDY SEAM 28.9'-31.5': UNWEATHERED, DK GRAY; FOSSILIFEROUS; 3" AMMONITE @ 31.0'		C	2. JAR SAMPLES: A: 0.0'-3.0' B: 3.0'-4.9' C: 4.9'-8.0' D: 8.0'-14.1' E: 14.1'-17.0'
30'	31.5'				D	3. DRILLING: AUGERED 0.0'-17.5'; AUGER REFUSAL @ 17.5'; 6" CORE 17.5'-32.5'; LEFT 10' OF CORE IN BORING (31.5'-32.5') ON LAST RUN. BAILED BORING.
40'					E	4. BASE OF WEATHERING @ 28.7'

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE
MAR 71 PROJECT: **AUBREY DAM** HOLE NO: **046C-359**

Hole No. 046C-360

DRILLING LOG		SWD		FWD		
PROJECT: AUBREY DAM - OUTLET WORKS						
LOCATION (Contiguous to Station): STA 28+20						
DRILLING AGENCY: USCE-C						
HOLE NO. (As shown on drawing sheet and site number): 046C-360						
NAME OF DRILLER: MULLINS						
DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED <input type="checkbox"/> BEG FROM VERT						
THICKNESS OF OVERBURDEN: 15.3'						
DEPTH DRILLED INTO ROCK: 14.7'						
TOTAL DEPTH OF HOLE: 30.0'						
DATE MOLE STARTED: 18 FEB 81 COMPLETED: 19 FEB 81						
ELEVATION TOP OF HOLE: 100.1						
TOTAL CORE RECOVERY FOR BORING: 100%						
SIGNATURE OF INSPECTOR: MCVEY						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	3 CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water used, depth of penetration, etc., if significant)
00'	0.0'		0.0' to 15.3': CLAY: 0.0'-2.4': MED/HIGH PLASTICITY; STIFF; DAMP; DK. BRN; SANDY & SILTY 2.4'-7.4': HIGH/MED PLASTICITY; STIFF; DAMP TO MOIST; RED YELLOW; SILTY & SANDY; LIME NODULES 7.4'-12.7': as above; MED/LOW PLASTICITY; MED STIFF; SANDIER 12.7'-15.3': MED/HIGH PLASTICITY; HARD; DRY; YELLOW BRN; SANDY & SILTY; LIMY		A	1. WATER LEVEL: 18 HRS 21" WATER @ 23.1'
10'	15.3'		15.3' to 17.3': LIMESTONE: WHITE & YELLOW BRN STAINS; HARD; MASSIVE; FOSSILIFEROUS		B	2. JAR SAMPLES: A: 0.0'-2' B: 2.4'-7' C: 7.4'-12.7' D: 12.7'-15.3'
20'	17.3'		17.3' to 29.7': SHALE: WEATHERED TO YELLOW BRN & LT. GRAY TO 29.2'; THEN UNWEATHERED DK GRAY; MASSIVE, MOD. SOFT; SILTY & SANDY; NUMEROUS SCAT. THIN SAND SEAMS; FEW LIMONITE CONCRETIONS 26.3'-26.7': MOD. CEMENTED SANDSTONE 27.8'-28.1': MOD. CEMENTED SANDSTONE		C	3. DRILLING: AUGERED 0.0'-17.5'; AUGER REFUSAL @ 17.5'; 6" CORE 17.5'-32.5'; LEFT 10' OF CORE IN BORING (31.5'-32.5') ON LAST RUN. BAILED BORING.
30'	29.7'				D	4. BASE OF WEATHERING @ 28.7'
40'					E	5. BASE OF @ 29.2'

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE
MAR 71 PROJECT: **AUBREY DAM** HOLE NO: **046C-360**

Mo. No. BAC-360

DRILLING LOG

SWD

INSTALLATION FWD

SHEET 1 OF 1 SHEETS

PROJECT AUBREY DAM - OUTLET WORKS

LOCATION (Township or Range)

STA 32+00

DRILLING AGENCY USCE-C

HOLE NO. (As shown on drawing title) and site marked

BAC-360

NAME OF DRILLER MULLINS

DIRECTION OF HOLE

THICKNESS OF OVERBURDEN 15.3'

DEPTH DRILLED INTO ROCK 14.7'

TOTAL DEPTH OF HOLE 30.0'

DATE HOLE 14 FEB 81

ELEVATION TOP OF HOLE 19 FEB 81

TOTAL CORE RECOVERY FOR BORING 98.5

SIGNATURE OF INSPECTOR MCVY

REMARKS

1. WATER LEVEL: 18 HRS. AFTER BAUNG WATER LEVEL WAS @ 23.1'

2. JAR SAMPLES: A: 0.0' - 2.4' B: 2.4' - 7.4' C: 7.4' - 12.7' D: 12.7' - 15.3'

3. DRILLING: AUGERED 0.0' - 15.0'. 6" CORE 15.0' - 30.0'. BAILED BORING.

4. E-LOGGING: C. ON HOLE DELETED 21' NORTH OF BAC-360.

5. BASE OF WEATHERING @ 29.2'

CLASSIFICATION OF MATERIALS (Description)

0.0' to 15.3' CLAY: 0.0' - 2.4' MED/HIGH PLASTICITY, STIFF, DAMP, DK. BRN; SANDY & SILTY. 2.4' - 7.4' HIGH/MED PLASTICITY, STIFF, DAMP TO MOIST; RED YELLOW; SILTY & SANDY; LIME NODULES. 7.4' - 12.7' as above, MED/LOW PLASTICITY; MED. STIFF; SANDIER. 12.7' - 15.3' MED/HIGH PLASTICITY, HARD; DRY, YELLOW BRN, SANDY & SILTY; LIMEY. 15.3' to 17.3' LIMESTONE - WHITE & YELLOW BRN STAINS; JARD; MASSIVE; FOSSILIFEROUS. 17.3' to 29.7' SHALE WEATHERED TO YELLOW BRN & LT. GRAY TO 29.2'; THEN UNWEATHERED DK GRAY; MASSIVE; MOD. SOFT; SILTY & SANDY. NUMEROUS SCALY THIN SAND SEAMS; FEW LIMONITE CONCRETIONS. 26.3' - 26.7' MOD. CEMENTED SANDSTONE. 27.8' - 28.1' MOD. CEMENTED SANDSTONE. 10' 29.7'

136 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT AUBREY DAM

HOLE NO. BAC-360

Mo. No. BAC-361

DRILLING LOG

SWD

INSTALLATION FWD

SHEET 1 OF 1 SHEETS

PROJECT AUBREY DAM - OUTLET WORKS

LOCATION (Township or Range)

STA 32+00

DRILLING AGENCY USCE-C

HOLE NO. (As shown on drawing title) and site marked

BAC-361

NAME OF DRILLER MULLINS

DIRECTION OF HOLE

THICKNESS OF OVERBURDEN 15.0'

DEPTH DRILLED INTO ROCK 11.0'

TOTAL DEPTH OF HOLE 24.0'

DATE HOLE 29 JAN 81

ELEVATION TOP OF HOLE 30 JAN 81

TOTAL CORE RECOVERY FOR BORING 99.5

SIGNATURE OF INSPECTOR

REMARKS

1. WATER LEVEL: ENCOUNTERED NO WATER WHILE AUGERING. 24 HRS. AFTER BAUNG WATER LEVEL WAS @ 17.5'

2. JAR SAMPLES: A: 0.0' - 5.0' B: 5.0' - 8.1' C: 8.1' - 13.0'

3. DRILLING: 8" AUGER 0.0' - 13.0' AUGER REFUSAL @ 13.0'. SET CASING TO 13.0'. 6" CORING 13.0' - 24.0'. BAILED HOLE.

4. E-LOGGING: BORING DRILLED 5' WEST OF BAC-361 TO DEPTH OF 120.0' & WAS C-LOGGED

CLASSIFICATION OF MATERIALS (Description)

0.0' to 13.0' CLAY: 0.0' - 5.0' MED. TO HIGH PLASTICITY; STIFF TO VERY STIFF; MOIST; RED-BRN WITH YELLOW-BRN & STEAKY BRN; SILTY, SLI. CALC. 5.0' - 8.1' HIGH PLASTICITY, VERY STIFF; SLI. MOIST; YELLOW-BRN; SANDY & SILTY; LIMEY; CALC. 8.1' - 13.0' MED-LOW PLASTICITY; VERY STIFF; SLI. MOIST; YELLOW-BRN; SANDY & SILTY; SLI. GRAVELLY @ 8.5'. 13.0' to 19.2' LIMESTONE - ARGILLA - OCEAN, WEATHER-STAINED YELLOW-BRN & WHITE, MASSIVE; HARD; OYSTER SHELLS; IRREGULAR THIN JOINT SHALE SEAMS; LIMONITE CONCRETIONS. 18.8' - 19.2' HARD RED LIMONITE SEAM. 19.2' to 23.8' SHALE, DK. GRAY WITH YELLOW-BRN WEATHERED JOINTS; MOD. SOFT; MASSIVE; LIMONITE CONCRETIONS; MOD. HARD, MOD. CEMENTED PALE BRN OR GRAY THIN SANDSTONE SEAMS @ 22.0', 22.3', 22.8', & 23.5'. 19.2' - 20.5' WEATHERED YELLOW-BRN & LT. GRAY TO 23.8'

0.2' CORINGS (23.0' - 24.0')

Box 1

Box 2

Box 3

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT AUBREY DAM

HOLE NO. BAC-361

Sheet No. 8A6C-361

SWD		FWD	
PROJECT: AUBREY DAM - OUTLET WORKS			
LOCATION (Contiguous or Station): STA. 33+95			
DRILLING AGENCY: USCEC			
HOLE NO. (As shown on drawing title and field notes): 8A6C-361			
NAME OF CHILLER: MULLINS			
DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			
THICKNESS OF OVERBURDEN: 6.7'			
DEPTH DRILLED INTO ROCK: 21.9'			
TOTAL DEPTH OF HOLE: 28.6'			
ELEVATION TOP OF HOLE: 13.0'			
ELEVATION GROUND WATER: SEE REMARKS			
DATE MOLE: 30 JAN 81			
ELEVATION TOP OF HOLE: 13.0'			
TOTAL CORE RECOVERY FOR BORING: 99.5			
SIGNATURE OF INSPECTOR: [Signature]			
REMARKS: (Drilling time, water loss, depth of overburden, etc., if significant)			
CLASSIFICATION OF MATERIALS (Discontinuity)			
0.0' to 13.0': CLAY. 0.0'-5.0' MED. TO HIGH PLASTICITY; STIFF TO VERY STIFF; MOIST; RED-BRN WITH YELLOW-BRN & STRONG BEN; SILTY; SLI. CALC. 5.0'-8.1' HIGH PLASTICITY; VERY STIFF; SLI. MOIST; YELLOW-BRN; SANDY & SILTY; LIMEY; CALC. 8.1'-13.0' MED. LOW PLASTICITY; VERY STIFF; SLI. MOIST; YELLOW-BRN; SANDY & SILTY; SLI. GRAVELLY @ 8.5'			
13.0' to 19.2': LIMESTONE ARGILLA - OCEAN, WEATHER-STAINED YELLOW-BRN & WHITE, MASSIVE; HARD; OYSTER SHELLS; IRREGULAR THIN SOFT SHALE SEAMS; LIMONITE CONCRETIONS 18.8'-19.2' HARD RED LIMONITE SEAM			
19.2' to 23.8': SHALE, DK. GRAY WITH YELLOW-BRN WEATHERED JOINTS; MOD. SOFT; MASSIVE; LIMONITE CONCRETIONS; MOD. HARD; MOD. CEMENTED PALE BEN OR GRAY THIN SANDSTONE SEAMS @ 22.0', 22.3', 22.8', & 23.5' 19.2'-20.5' WEATHERED YELLOW-BRN & LT. GRAY TO 23.8'			

Sheet No. 8A6C-362

SWD		FWD	
PROJECT: AUBREY DAM - OUTLET WORKS			
LOCATION (Contiguous or Station): STA. 33+95			
DRILLING AGENCY: USCEC			
HOLE NO. (As shown on drawing title and field notes): 8A6C-362			
NAME OF CHILLER: MULLINS			
DIRECTION OF HOLE: <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			
THICKNESS OF OVERBURDEN: 6.7'			
DEPTH DRILLED INTO ROCK: 21.9'			
TOTAL DEPTH OF HOLE: 28.6'			
ELEVATION TOP OF HOLE: 13.0'			
ELEVATION GROUND WATER: SEE REMARKS			
DATE MOLE: 30 JAN 81			
ELEVATION TOP OF HOLE: 13.0'			
TOTAL CORE RECOVERY FOR BORING: 99.5			
SIGNATURE OF INSPECTOR: [Signature]			
REMARKS: (Drilling time, water loss, depth of overburden, etc., if significant)			
CLASSIFICATION OF MATERIALS (Discontinuity)			
0.0' to 6.7': CLAY. 0.0'-1.3' MED. PLASTICITY; STIFF; DRY, DK. BEN, SANDY & SILTY 1.3'-2.2' HIGH PLASTICITY; STIFF, SLI. MOIST, STRONG BEN 2.2'-6.7' MED. LOW PLASTICITY, VERY STIFF, DRY, RED-DISH, YELLOW; SANDY & SILTY; LIMEY 6.7' to 12.6' LIMESTONE ARGILLA - OCEAN, WEATHER-STAINED YELLOW-BRN & WHITE; MASSIVE; HARD; OYSTER SHELLS 12.3'-12.6' HARD RED LIMONITE SEAM			
12.6' to 24.1': SHALE, WEATHERED YELLOW-BRN & GRAY TO UNWEATHERED DK. GRAY @ 24.3' SOFT TO MOD. SOFT; MASSIVE; LIMONITE CONCRETIONS; SOFT THIN SANDY SEAMS; MOD. HARD, MOD. CEMENTED PALE BEN SANDSTONE SEAMS @ 15.6'-16.0' & @ 16.9'			
24.1' to 28.3': SANDSTONE & SHALE. INTERBEDDED DK. GRAY SOFT TO MOD. SOFT UNWEATHERED SHALE & PALE BEN MOD. HARD MOD. CEMENTED SANDSTONE 24.1'-24.2' HARD, WELL-CEMENTED SANDSTONE 28.1'-28.3' HARD, WELL-CEMENTED SANDSTONE @ 28.3'			

RECORD DRAWING-WORK AS BUILT

SYM	LOC	NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS					
DESIGNED BY: RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT, SPILLWAY AND OUTLET WORKS LOGS OF BORINGS 8A6C-359, 8A6C-360, 8A6C-361 AND 8A6C-362					
SUBMITTED BY: INVITATION NO. DACW63-82-B-0025 DATE MAR 1982					
ENGINEER: CONTRACT NO. DACW63-82-C-0093					
DRAWING NUMBER: SHEET NO. 30					

TO ACCOMPANY FOUNDATION REPORT

Hole No. BA-363

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
SWD		FWD		FWD		1 OF 1 SHEETS	
1. PROJECT AUBREY DAM - OUTLET WORKS				10. SIZE AND TYPE OF BIT 8" AUGER			
2. LOCATION (Continent or Station) STA. 12+50				11. DESIGN FOR ELEVATION (Insert 1718 or 1719)			
3. DRILLING AGENCY USCE-C				12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500			
4. HOLE NO. (As shown on drawing title and this number) BA-363				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN 0			
5. NAME OF DRILLER MULLINS				14. TOTAL NUMBER CORE BOXES N/A			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED SEE FROM VERT.				15. ELEVATION GROUND WATER SEE REMARKS			
7. THICKNESS OF OVERBURDEN 24.6'				16. DATE HOLE 1 JAN 81			
8. DEPTH DRILLED INTO ROCK 1.4'				17. ELEVATION TOP OF HOLE 23.0'			
9. TOTAL DEPTH OF HOLE 26.0'				18. TOTAL CORE RECOVERY FOR BORING N/A			
				19. SIGNATURE OF INSPECTOR MEVEY			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SCORE RECOVER LAY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water level, depth of weathering, etc., if significant)	
00'	00'		00' to 24.6' CLAY: 00'-4.3' LOW PLASTICITY @ SURFACE, GRADING TO HIGH PLASTICITY BY 1.0'; SOFT TO MED. STIFF, MOIST; DK BEN; SILTY 4.3'-16.0' HIGH-MED. PLASTICITY; STIFF BECOMING SOFT BY 14.0'; MOIST; YELLOW BEN & LT. GRAY; SANDY & SILTY; SOME LIME GRAVELS			1. WATER LEVEL: BORING MAKING WATER @ 13.0'. WATER LEVEL IMMEDIATELY AFTER DRILLING WAS @ 7.0'. 24 HRS AFTER DRILLING WATER LEVEL WAS @ 4.8'. 6 FEB 81: WL @ 4.6'. 9 FEB 81: WL @ 4.6'.	
						2. NO SAMPLES TAKEN.	
						3. DRILLING NOTE BORING OFFSET 17' NE.	
			16.0'-23.0' GRAY & STRONG BEN; AS ABOVE; THIN YELLOW SAND SEAM AFTER 20.0'.				
			23.0'-24.6' DK. GRAY, AS ABOVE, STIFF				
			24.6' to 26.0' SHALE DK. GRAY; DRY; MOD. SOFT; BLOCKY CLEAVAGE.				
			ID: 26.0'				

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT AUBREY DAM HOLE NO. BA-363

Hole No. BA-363

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
SWD		FWD		FWD		1 OF 1 SHEETS	
1. PROJECT AUBREY DAM - OUTLET WORKS				10. SIZE AND TYPE OF BIT 8" AUGER			
2. LOCATION (Continent or Station) STA. 12+50				11. DESIGN FOR ELEVATION (Insert 1718 or 1719)			
3. DRILLING AGENCY USCE-C				12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500			
4. HOLE NO. (As shown on drawing title and this number) BA6C-36A				13. TOTAL NO. OF OVER- BURDEN SAMPLES TAKEN 1			
5. NAME OF DRILLER MULLINS				14. TOTAL NUMBER CORE BOXES 1			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED SEE FROM VERT.				15. ELEVATION GROUND WATER SEE REMARKS			
7. THICKNESS OF OVERBURDEN 12.0'				16. DATE HOLE 23 FEB 81			
8. DEPTH DRILLED INTO ROCK 23.0'				17. ELEVATION TOP OF HOLE 23.0'			
9. TOTAL DEPTH OF HOLE 35.0'				18. TOTAL CORE RECOVERY FOR BORING N/A			
				19. SIGNATURE OF INSPECTOR MEVEY			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	SCORE RECOVER LAY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water level, depth of weathering, etc., if significant)	
00'	00'		00' to 8.0' CLAY: 0.0'-3.1' LOW PLASTICITY, STIFF, MOIST, BLACK; SILTY & SANDY 3.1'-5.1' HIGH PLASTICITY, STIFF, MOIST; DK. BEN; SILTY 5.1'-8.0' HIGH PLASTICITY, HARD, SL. DAMP, YELLOW BEN & LT. GRAY, LIMEY; SANDY & SILTY 8.0' to 12.0' GRAVEL: WELL-GRADED, MED. DENSE; SUB- ROUNDED; SANDY; CLAYEY; BEN			1. WATER LEVEL 24 HRS. AFTER WATER LEVEL 8.5'	
						2. JAR SAMPL A: 0.0' - 2.0' B: 2.1' - 5.1' C: 5.1' - 8.0' D: 8.0' - 12.0' E: 12.0' - 16.0'	
						3. DRILLING AUGERED & SET CASIN CLEANED & CORED 16.0' BAILED E	
			12.0' to 16.0' SHALE & SANDSTONE: SL. WEATHERED; YELLOW BEN & LT. TO DK. GRAY; SOFT TO MOD. SOFT, MASSIVE; SOME SAND & GRAVEL TO 14.0' (REWORKED OR DUE TO AUGER).			4. BASE OF WEIR @ 16.0'.	
			16.0' to 35.0' SHALE: UNWEATHERED; DK. GRAY; MOD. SOFT; MASSIVE; SILTY & SANDY; SL. FOSSIL- IFEROUS WITH PLANT REMAINS & CARBON; ABUNDANT MOD. HARD MOD. CEMENTED SANDSTONE SEAMS 16.9'-17.4' SANDSTONE 18.1'-18.8' SANDSTONE 20.8'-21.0' SANDSTONE 21.1'-21.4' SANDSTONE 21.7'-21.9' SANDSTONE 22.2'-22.5' SANDSTONE 23.8'-24.0' SANDSTONE 24.3'-24.8' SANDSTONE 24.9'-25.5' SANDSTONE 26.4'-33.4' SANDSTONE 34.0'-34.7' SHALEY SANDSTONE 34.7' HARD BRN CONCRETION				
			ID: 35.0'				

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT AUBREY DAM HOLE NO. BA-363

Hole No. **816C-365**

HOLE LOG		INSTALLATION		SHEET 1 OF 1 SHEETS	
SWD		FWD			
1. PROJECT: DAH - OUTLET WORKS					
2. DATE: 17-50					
3. LOCATION: USCEC					
4. HOLE NO.: 816C-365					
5. HOLE NAME: MULLINS					
6. HOLE TYPE: SWD					
7. HOLE SIZE AND TYPE OF BIT: 1 1/2" CORE					
8. DATE OF ELEVATION: 17-50					
9. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500					
10. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 0					
11. TOTAL NUMBER CORE BOXES: 3					
12. ELEVATION GROUND WATER: SEE REMARKS					
13. DATE HOLE: 6 FEB 81					
14. ELEVATION TOP OF HOLE: 98.5					
15. TOTAL CORE RECOVERY FOR BORING: 98.5					
16. SIGNATURE OF INSPECTOR: MCVEY					
17. REMARKS: (Drilling time, water level, depth of casing, etc., if significant)					
DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	5. CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
0.0'		0.0' to 12.2' CLAY: 0.0'-2.4' LOW PLASTICITY, MED STIFF, MOIST, YELLOW BRN, VERY SANDY, GRAVELLY 2.4'-3.5' MED/HIGH PLASTICITY, MED STIFF, MOIST, BROWNISH-GRAY, SANDY, SH. GRAVELLY 3.5'-8.3' MED/HIGH PLASTICITY, HARD, DRY, BRN GRAY, SANDY & SILTY 8.3'-12.2' MED/HIGH PLASTICITY, HARD, DRY, YELLOW BRN & LT. GRAY, SANDY & SILTY 12.2' to 16.0' GRAVEL: 12.2'-13.1' COARSE TO FINE, ROUND, DRY, STRONG BRN, SANDY & CLAYEY 13.1'-16.0' OS 200K, MOIST, YELLOW BRN & LT. GRAY 16.0' to 34.7' SHALE & SANDSTONE: INTERLAYERED, UNWEATHERED, OK GRAY TO LT. GRAY, MOD. SOFT TO MOD. HARD, MOD. CEMENTED, MASSIVE 23.5'-24.6' SANDSTONE SEAM		A	1. WATER LEVEL: 72 HRS. AFTER BAILING WATER LEVEL WAS @ 14.0'
				B	
				C	2. JAR SAMPLES: A: 0.0'-2.4' B: 2.4'-3.5' C: 3.5'-8.3' D: 8.3'-12.2' E: 12.2'-16.0' F: 16.0'-20.0'
				D	
				E	
				F	3. DRILLING: NOTE: BORING OFFSET 50' WEST. AUGER 0.0'-16.0' SET 19' OF CASING, CLEANED OUT TO 20.0'. L' CORE 20.0'-35.0'.
				G	
				Box 1	
				Box 2	
				Box 3	
10.0'					
10.0' to 34.7'					

18. PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: **DAH - OUTLET WORKS** HOLE NO.: **816C-365**

Hole No. **816C-365**

HOLE LOG		INSTALLATION		SHEET 1 OF 1 SHEETS	
SWD		FWD			
1. PROJECT: DAH - OUTLET WORKS					
2. DATE: 17-50					
3. LOCATION: USCEC					
4. HOLE NO.: 816C-365					
5. HOLE NAME: MULLINS					
6. HOLE TYPE: SWD					
7. HOLE SIZE AND TYPE OF BIT: 1 1/2" CORE					
8. DATE OF ELEVATION: 17-50					
9. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500					
10. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: 0					
11. TOTAL NUMBER CORE BOXES: 3					
12. ELEVATION GROUND WATER: SEE REMARKS					
13. DATE HOLE: 6 FEB 81					
14. ELEVATION TOP OF HOLE: 98.5					
15. TOTAL CORE RECOVERY FOR BORING: 98.5					
16. SIGNATURE OF INSPECTOR: MCVEY					
17. REMARKS: (Drilling time, water level, depth of casing, etc., if significant)					
DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	5. CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
0.0'		0.0' to 12.2' CLAY: 0.0'-2.4' LOW PLASTICITY, MED STIFF, MOIST, YELLOW BRN, VERY SANDY, GRAVELLY 2.4'-3.5' MED/HIGH PLASTICITY, MED STIFF, MOIST, BROWNISH-GRAY, SANDY, SH. GRAVELLY 3.5'-8.3' MED/HIGH PLASTICITY, HARD, DRY, BRN GRAY, SANDY & SILTY 8.3'-12.2' MED/HIGH PLASTICITY, HARD, DRY, YELLOW BRN & LT. GRAY, SANDY & SILTY 12.2' to 16.0' GRAVEL: 12.2'-13.1' COARSE TO FINE, ROUND, DRY, STRONG BRN, SANDY & CLAYEY 13.1'-16.0' OS 200K, MOIST, YELLOW BRN & LT. GRAY 16.0' to 34.7' SHALE & SANDSTONE: INTERLAYERED, UNWEATHERED, OK GRAY TO LT. GRAY, MOD. SOFT TO MOD. HARD, MOD. CEMENTED, MASSIVE 23.5'-24.6' SANDSTONE SEAM		A	1. WATER LEVEL: 72 HRS. AFTER BAILING WATER LEVEL WAS @ 14.0'
				B	
				C	2. JAR SAMPLES: A: 0.0'-2.4' B: 2.4'-3.5' C: 3.5'-8.3' D: 8.3'-12.2' E: 12.2'-16.0' F: 16.0'-20.0'
				D	
				E	
				F	3. DRILLING: NOTE: BORING OFFSET 50' WEST. AUGER 0.0'-16.0' SET 19' OF CASING, CLEANED OUT TO 20.0'. L' CORE 20.0'-35.0'.
				G	
				Box 1	
				Box 2	
				Box 3	
10.0'					
10.0' to 34.7'					

18. PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: **DAH - OUTLET WORKS** HOLE NO.: **816C-365**

RECORD DRAWING-WORK AS BUILT

RECORD DRAWING-WORK AS BUILT

Hole No. **8A6C-365**

SHEET 1 OF 1 SHEETS

INSTALLATION **FWD**

PROJECT **OUTLET WORKS**

LOCATION (Continent or Island) **STA. 22+50**

DRILLING AGENCY **USCC-C**

HOLE NO. (As shown on drawing sheet and data number) **8A6C-365**

NAME OF DRILLER **MU' NS**

DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ☐ DEG. FROM VERT.

THICKNESS OF OVERBURDEN **25.0'**

DEPTH DRILLED INTO ROCK **10.0'**

TOTAL DEPTH OF HOLE **35.0'**

SIZE AND TYPE OF BIT **8" AUGER, L-CORE**

DATE FOR ELEVATION INSTRUMENT = HJL

MANUFACTURER'S DESIGNATION OF DRILL **FAILING 1500**

TOTAL NO. OF OVER BURDEN SAMPLES TAKEN **0**

TOTAL NUMBER CORE BOXES **3**

ELEVATION GROUND WATER **SEE REMARKS**

DATE HOLE STARTED **6 FEB 81**

DATE HOLE COMPLETED **6 FEB 81**

ELEVATION TOP OF HOLE

TOTAL CORE RECOVERY FOR BORING **98.4**

SIGNATURE OF INSPECTOR **MCVEY**

CLASSIFICATION OF MATERIALS (Description)

1. WATER LEVEL

72 HRS. AFTER BAILING WATER LEVEL WAS @ 14.0'

2. JAR SAMPLES

A: 0.0'-2.4'

B: 2.4'-3.5'

C: 3.5'-8.3'

D: 8.3'-12.2'

E: 12.2'-13.1'

F: 13.1'-16.0'

G: 16.0'-20.0'

3. DRILLING

NOTE: BORING OFFSET 50' WEST

AUGER 0.0'-16.0' SET 19' OF CASING. CLEANED OUT TO 20.0' L-CORE 20.0'-35.0'

0.0'-12.2' CLAY

0.0'-2.4' LOW PLASTICITY, MED. STIFF, MOIST, YELLOW-BRN. VERY SANDY, GRAVELLY

2.4'-3.5' MED/HIGH PLASTICITY, MED. STIFF, MOIST, BROWNISH-GRAY, SANDY, SILTY, GRAVELLY

3.5'-8.3' MED/HIGH PLASTICITY, HARD; DRY; BRN GRAY; SANDY & SILTY

8.3'-12.2' MED/HIGH PLASTICITY, HARD; DRY, YELLOW-BRN & LT. GRAY; SANDY & SILTY

12.2'-16.0' GRAVEL

12.2'-13.1' COARSE TO FINE; ROUND; DRY; STRONG BRN; SANDY & CLAYEY

13.1'-16.0' AS ABOVE; MOIST; YELLOW-BRN & LT. GRAY

16.0'-34.7' SHALE & SANDSTONE

INTERLAYERED; UNWEATHERED; DK. GRAY TO LT. GRAY; MOD. SOFT TO MOD. HARD; MOD. CEMENTED; MASSIVE

23.5'-24.6' SANDSTONE SEAM

TO: 34.7'

PROJECT **AUBREY DAM**

HOLE NO. **8A6C-365**

Hole No. **8A6C-366**

SHEET 1 OF 2 SHEETS

INSTALLATION **FWD**

PROJECT **OUTLET WORKS**

LOCATION (Continent or Island) **STA. 22+50**

DRILLING AGENCY **USCC-C**

HOLE NO. (As shown on drawing sheet and data number) **8A6C-366**

NAME OF DRILLER **MU' NS**

DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ☐ DEG. FROM VERT.

THICKNESS OF OVERBURDEN **25.0'**

DEPTH DRILLED INTO ROCK **10.0'**

TOTAL DEPTH OF HOLE **35.0'**

SIZE AND TYPE OF BIT **8" AUGER, L-CORE**

DATE FOR ELEVATION INSTRUMENT = HJL

MANUFACTURER'S DESIGNATION OF DRILL **FAILING 1500**

TOTAL NO. OF OVER BURDEN SAMPLES TAKEN **0**

TOTAL NUMBER CORE BOXES **2**

ELEVATION GROUND WATER **SEE REMARKS**

DATE HOLE STARTED **4 FEB 81**

DATE HOLE COMPLETED **5 FEB 81**

ELEVATION TOP OF HOLE

TOTAL CORE RECOVERY FOR BORING **96.4**

SIGNATURE OF INSPECTOR **MCVEY**

CLASSIFICATION OF MATERIALS (Description)

1. WATER LEVEL

18 HRS. AFTER BAILING WATER LEVEL WAS @ 17.8'

72 HRS. AFTER BAILING WATER LEVEL WAS @ 17.5'

2. JAR SAMPLES

A: 0.0'-3.1'

B: 3.1'-8.1'

C: 8.1'-12.3'

D: 12.3'-17.0'

E: 17.0'-19.8'

F: 19.8'-25.0'

3. DRILLING

NOTE GRAVEL ON SURFACE @ BORING LOCATION

8" AUGER 0.0'-25.0' AUGER REFUSAL @ 25.0' SET CASING TO 25.0' 6" CORING 25.0'-35.0'

0.0'-17.0' CLAY

0.0'-3.1' HIGH PLASTICITY, STIFF, MOIST, RED & REDDISH-BRN, SANDY & SILTY

3.1'-12.3' MED-HIGH PLASTICITY, HARD; DRY, YELLOW-BRN & LT. GRAY, SANDY & SILTY

12.3'-17.0' LOW-MED PLASTICITY, MED STIFF TO SOFT, MOIST, PALE BRN & YELLOW-BRN, VERY SANDY, SAND SEAMS

17.0'-25.0' GRAVEL

17.0'-19.8' FINE TO COARSE, ROUND, VERY MOIST TO WET, STRONG BRN; SANDY & CLAYEY

19.8'-25.0' AS ABOVE; YELLOW-BRN & LT. GRAY, VERY MOIST

25.0'-34.6' SHALE ARENACEOUS, SOFT TO MOD. SOFT, UNWEATHERED, BENTONITE-LOOKING @ 25.4', SCAT. SANDSTONE SEAMS; SCAT. DOLOMITE SEAMS; MANY THIN SCAT. SAND SEAMS, MOD. SOFT TO MOD. HARD, MOD. CEMENTED, & LT. GRAY

25.0'-25.4' VERY HARD BRN DOLOMITE SEAM

26.1'-26.3' SANDSTONE

27.8' HARD DOLOMITE

28.5'-29.2' SHALEY SANDSTONE

31.3'-31.6' SANDSTONE

31.9'-32.0' SANDSTONE

32.0'-32.1' DOLOMITE

32.8'-34.6' SHALEY SANDSTONE

TO: 34.6'

PROJECT **AUBREY DAM**

HOLE NO. **8A6C-366**

RECORD DRAWING-WORK AS BUILT

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

8A

DESIGNED BY

DRAWN BY

REVIEWED BY

SUBMITTED BY

INVESTIGATION NO. DACW63-82-0025 DATE: MAR, 1982

CONTRACT NO. DACW63-82-C-0089

DRAWING NUMBER

SHEET NO

SEQUENCE NO

39

G

F

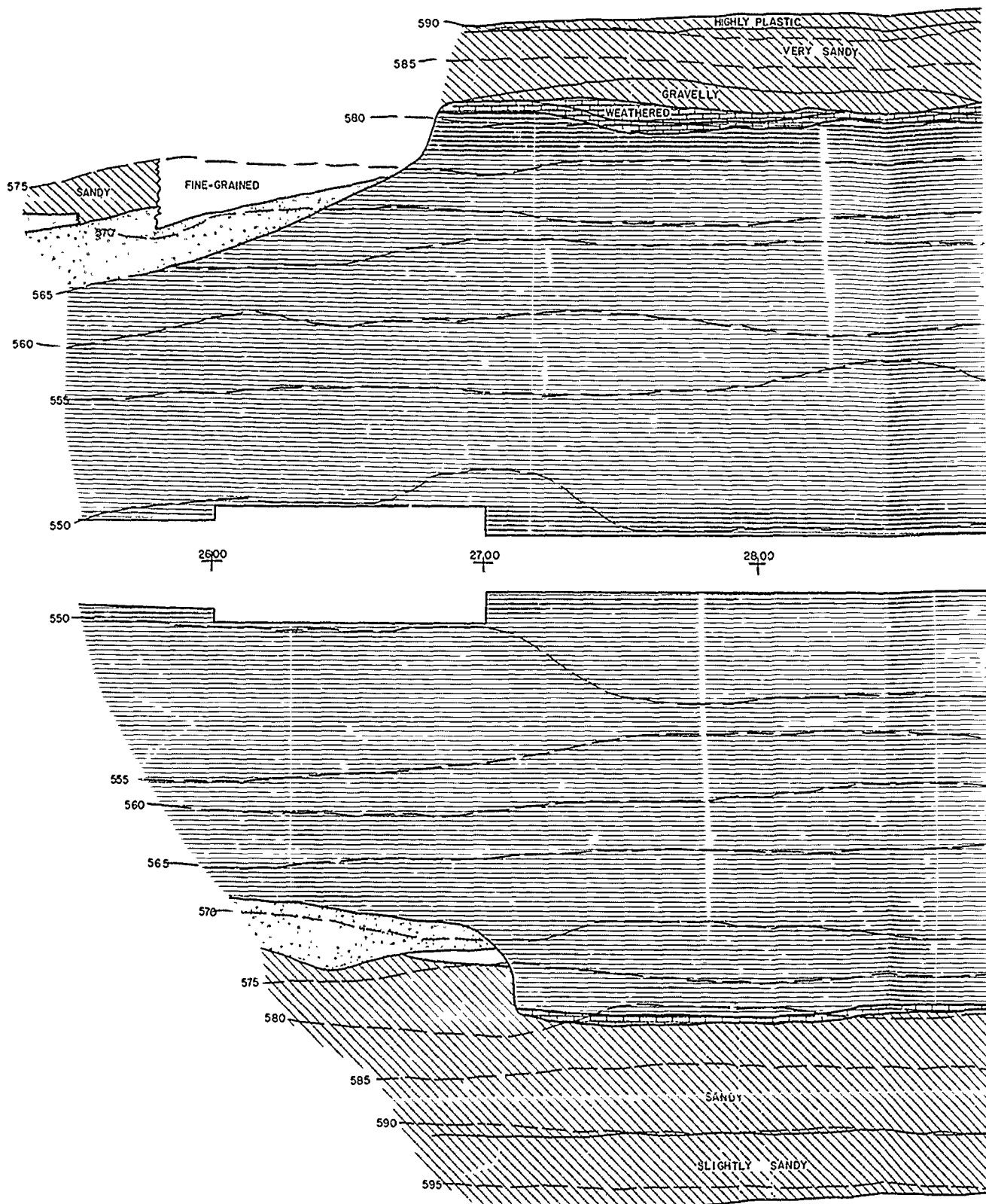
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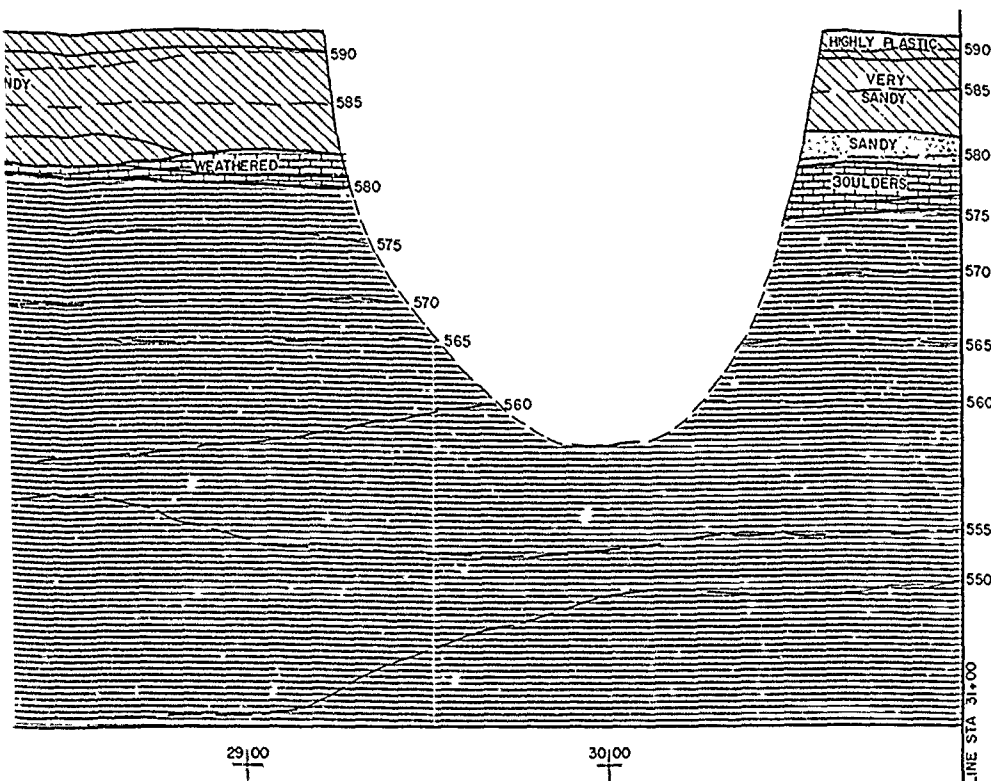
D

C

B

A





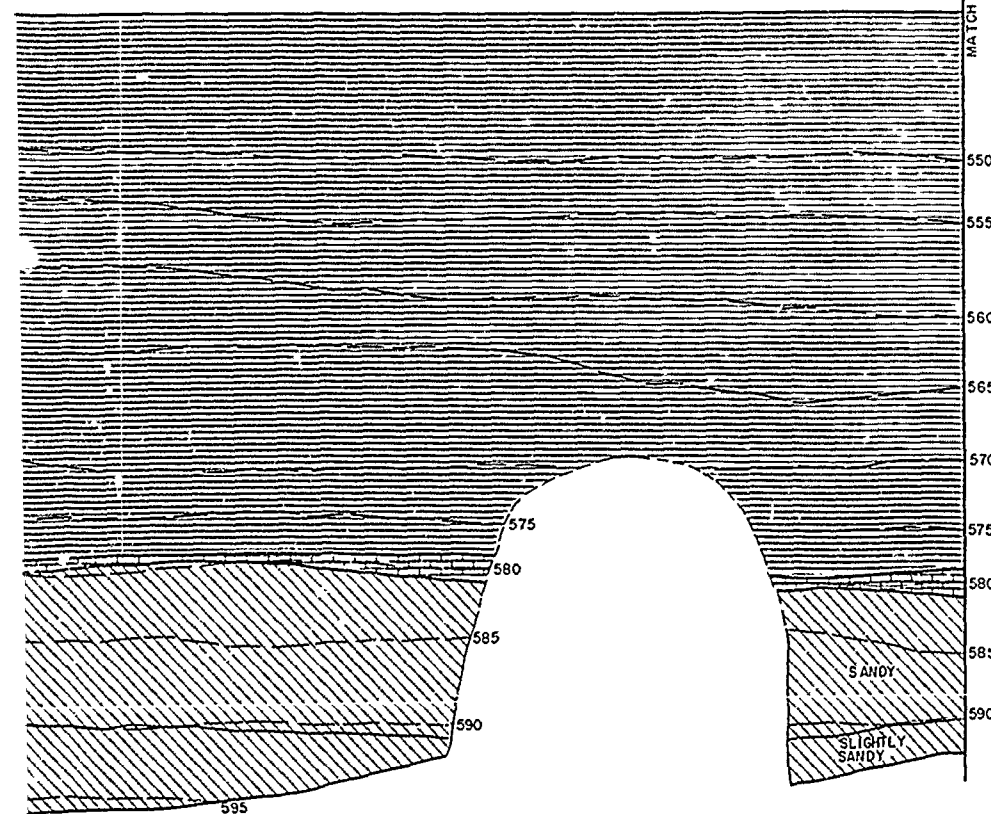
29+00

30+00

MATCH LINE STA 31+00

LEGEND

- SAND
- GRAVEL
- CLAY
- SANDSTONE
- LIMESTONE
- SHALE



595

575

580

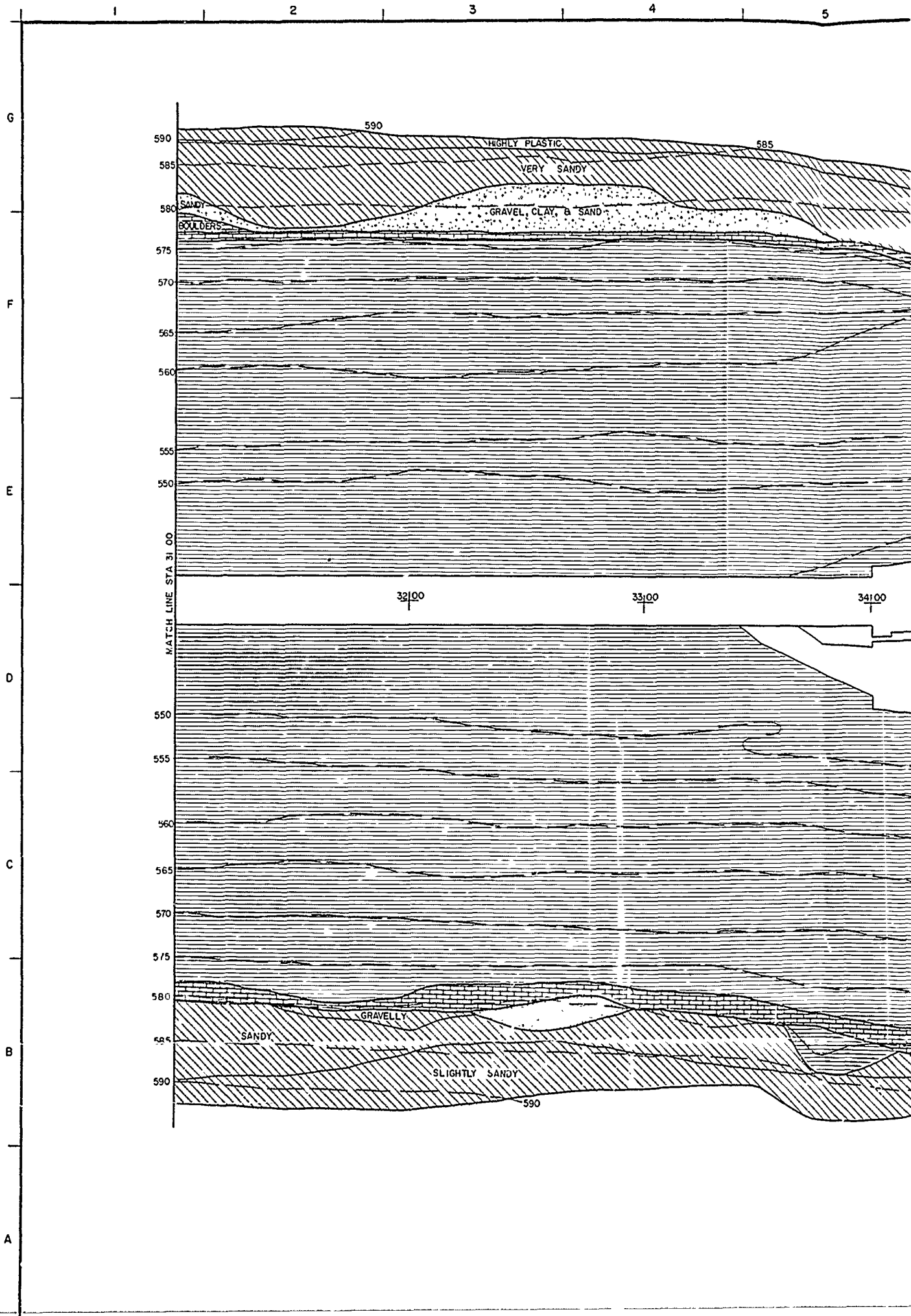
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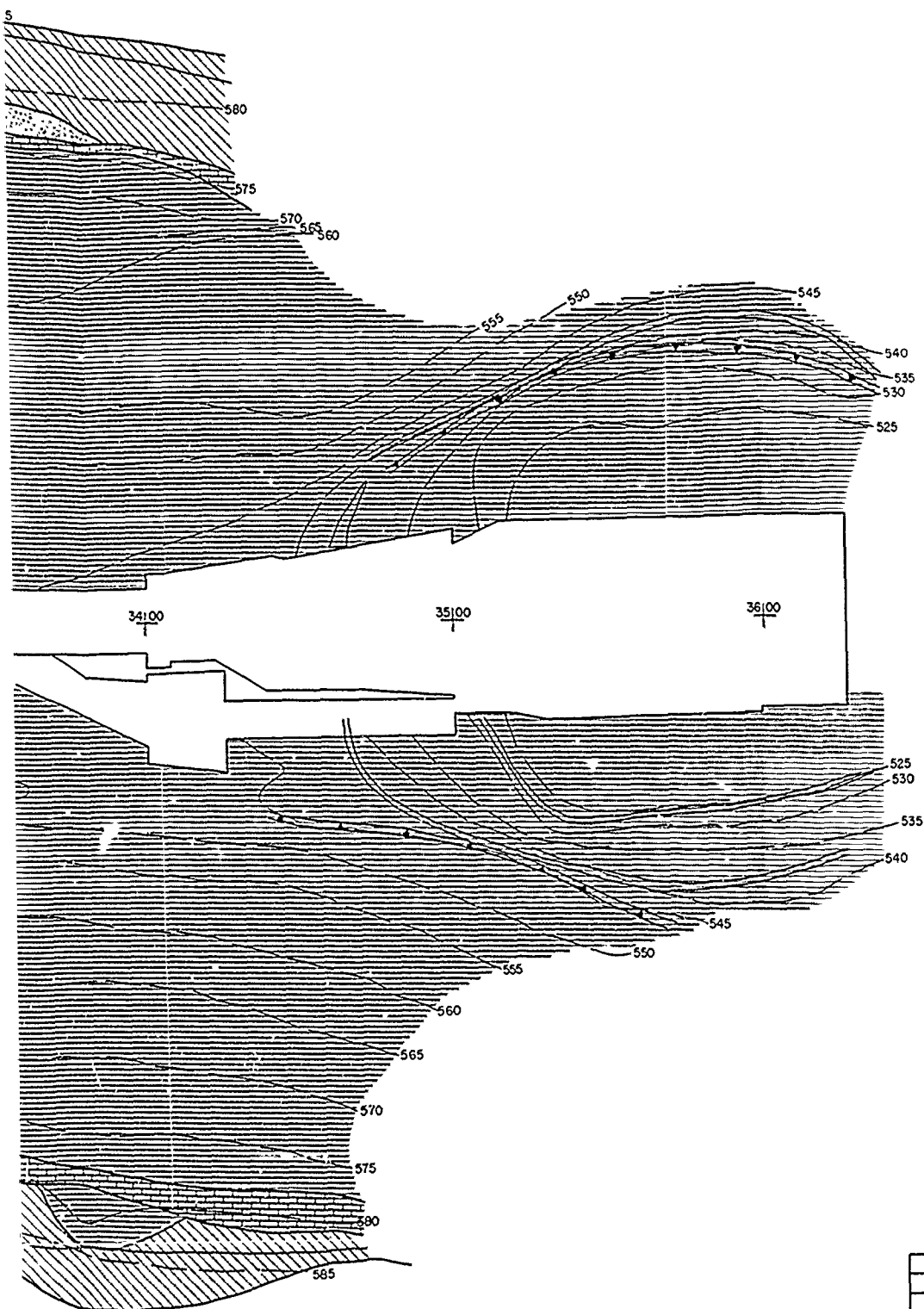
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SANDY

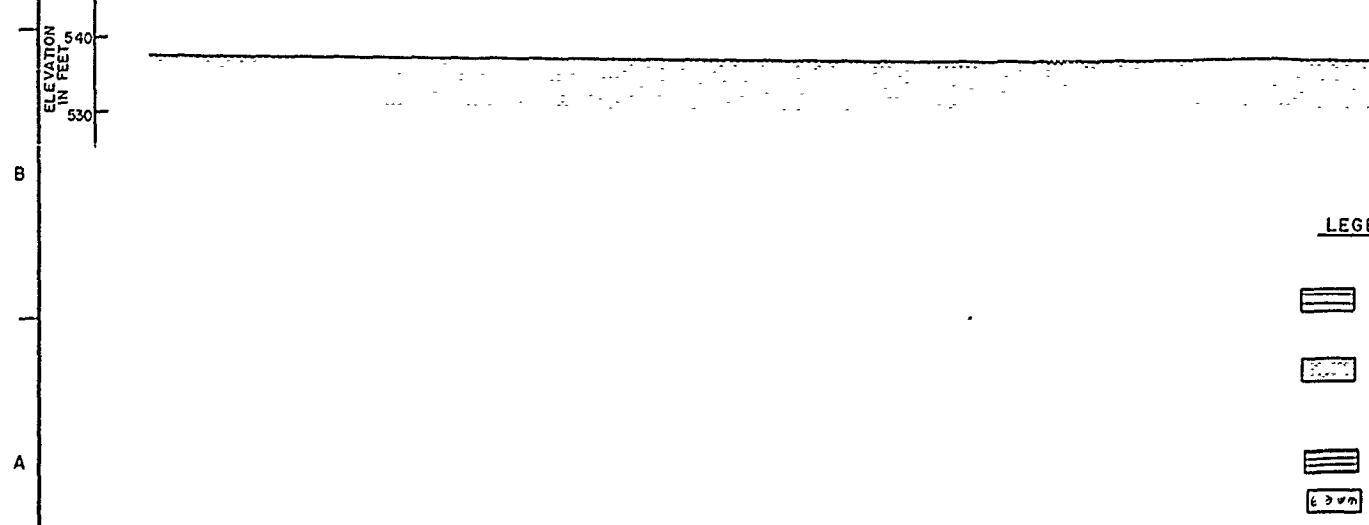
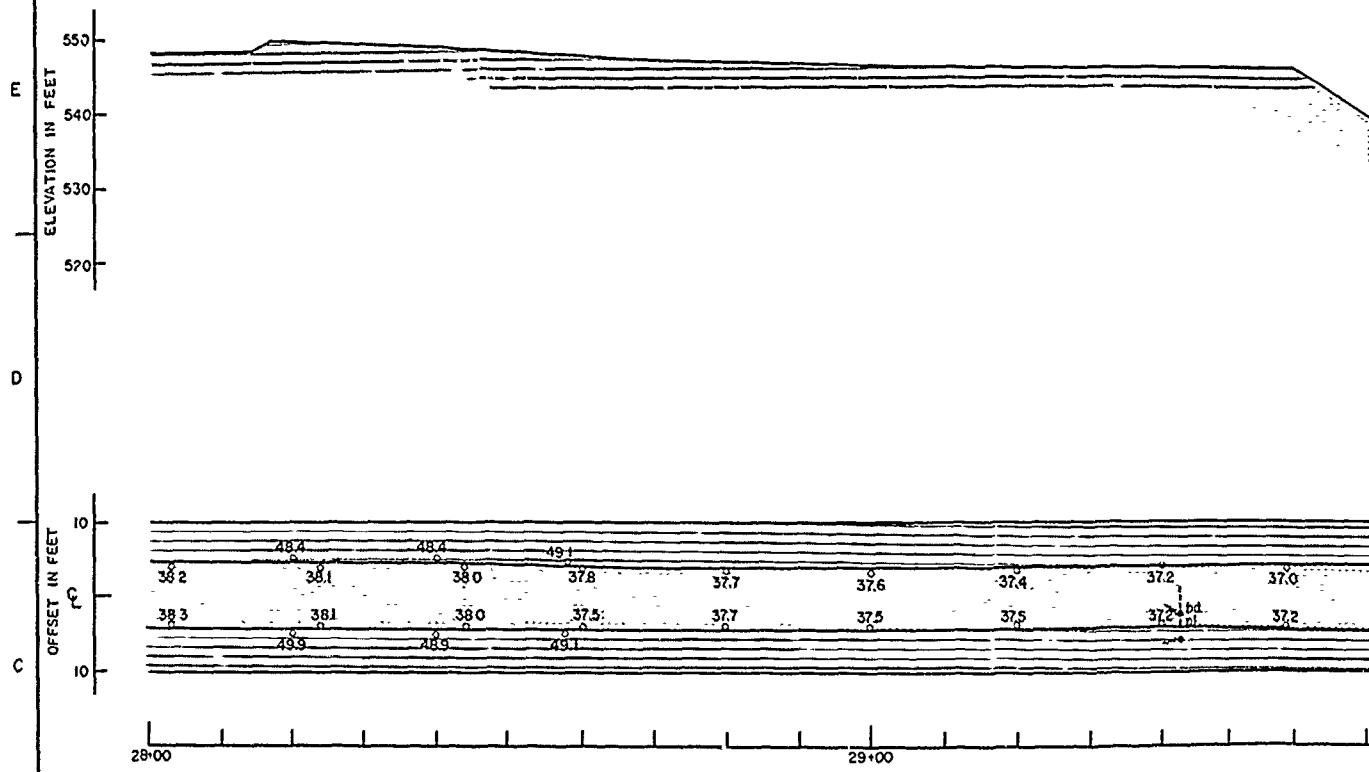
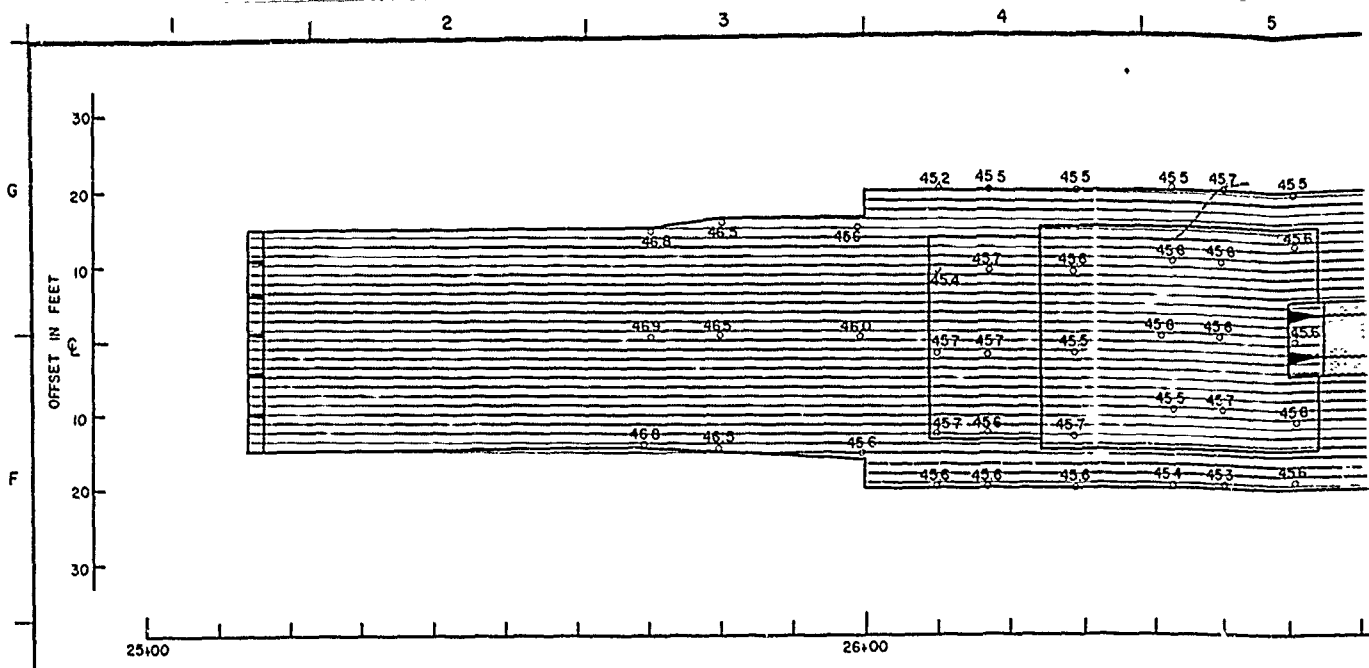
SLIGHTLY SANDY

DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT	
REVIEWED BY: R. BEHM		OUTLET WORKS STA. 25+50 TO 31+00	
SUBMITTED BY: ROBERT C. BEHM		SOL. NO.	DATED:
ENGINEER:		CONTR. NO.	SEQUENCE NO.
		DRAWING NUMBER	SHEET NO.
			40



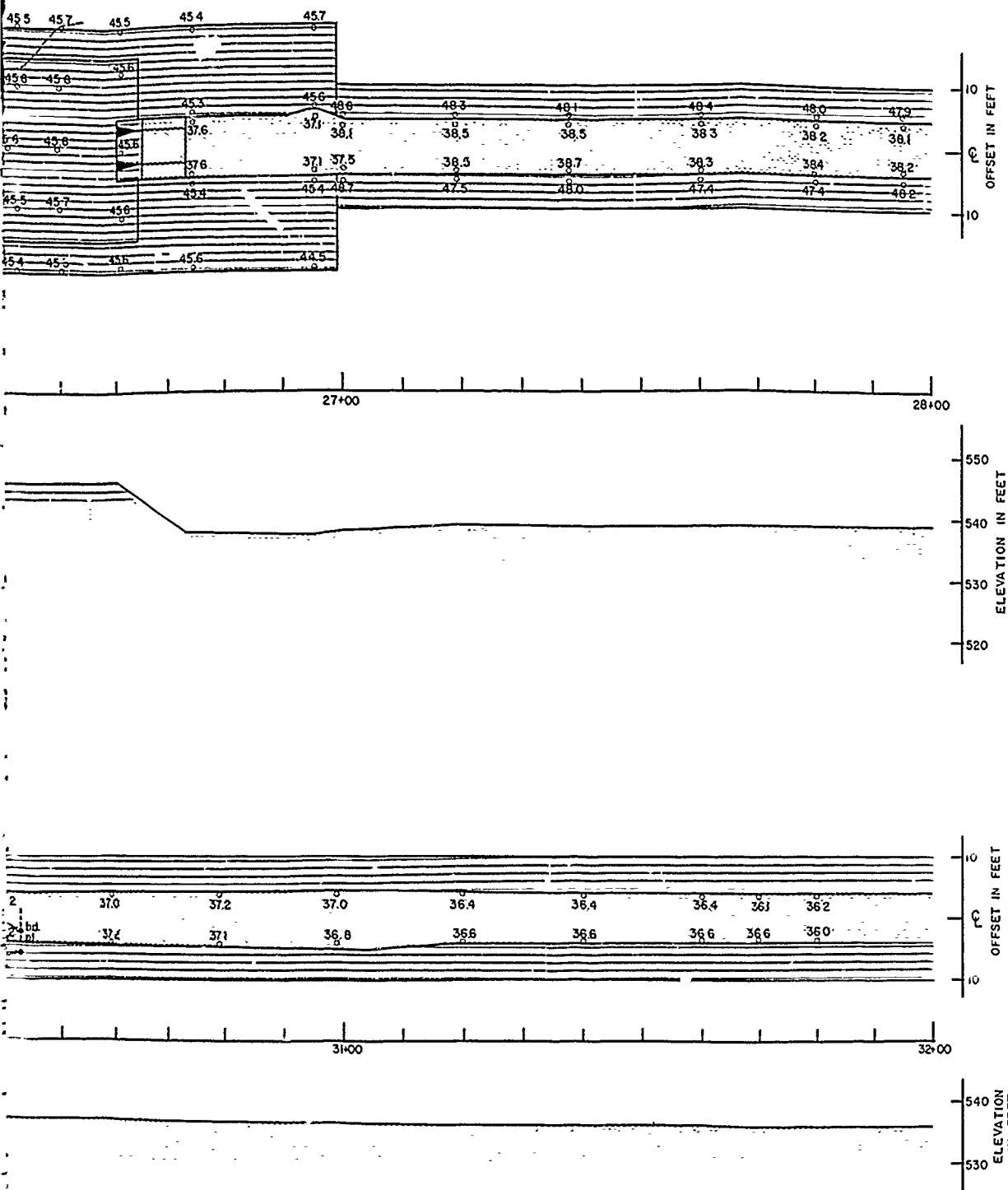


DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT	
REVIEWED BY: R. BEHM		OUTLET WORKS STA. 31+00 TO 36+28	
SUBMITTED BY: ROBERT C. BEHM		SOL. NO.	DATED:
CONTR. NO.		DRAWING NUMBER	SHEET NO. 41








LEGEN

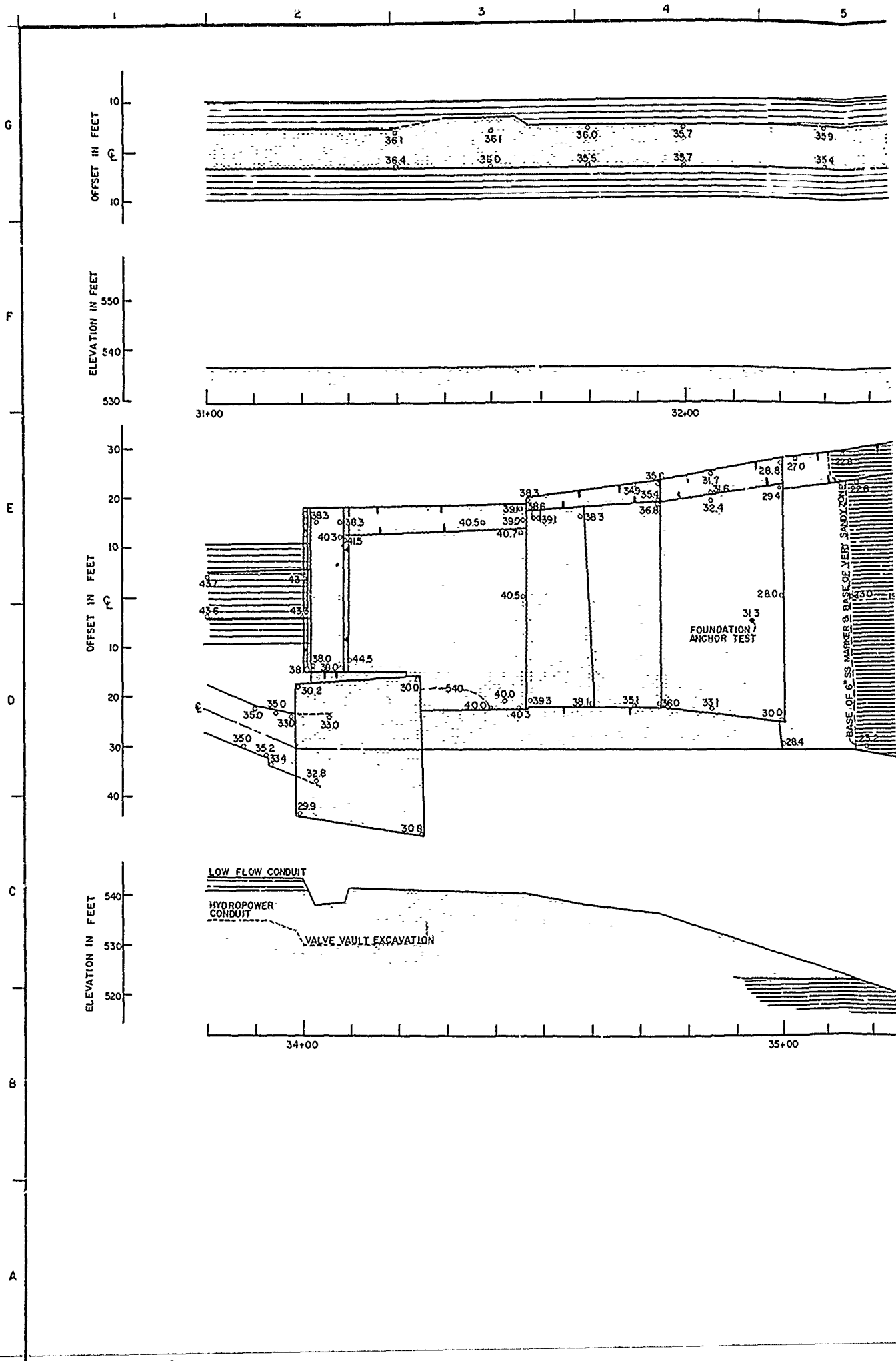
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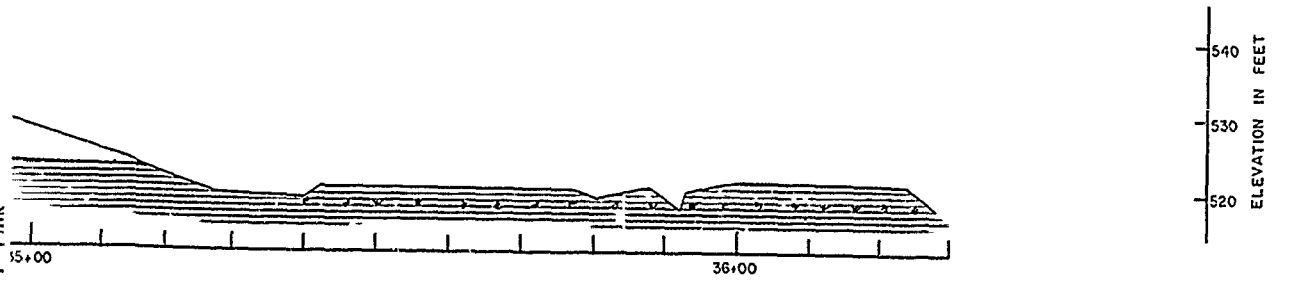
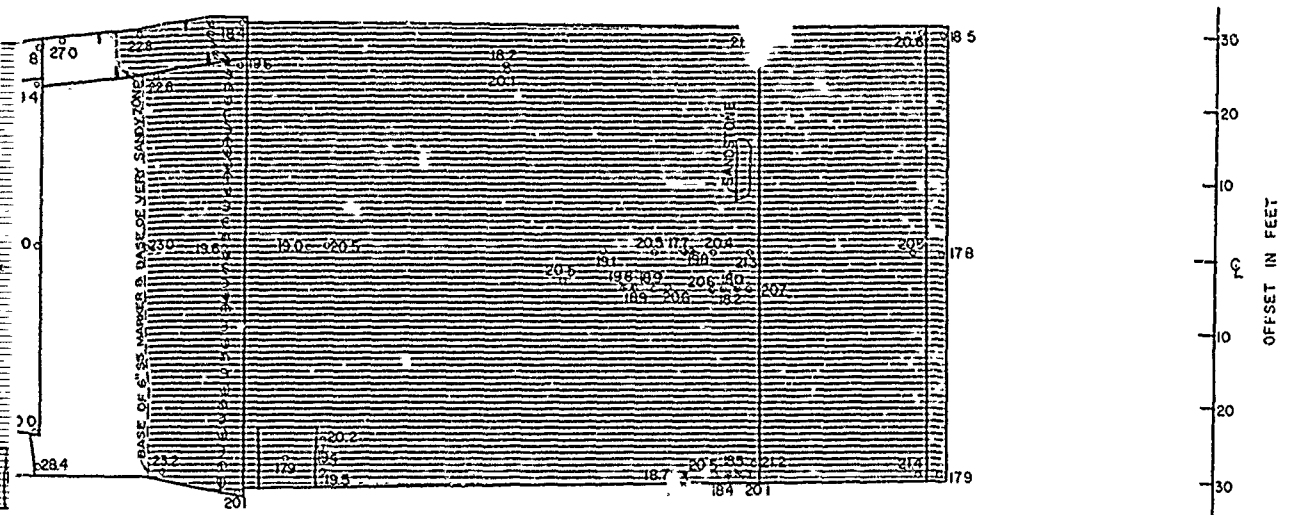
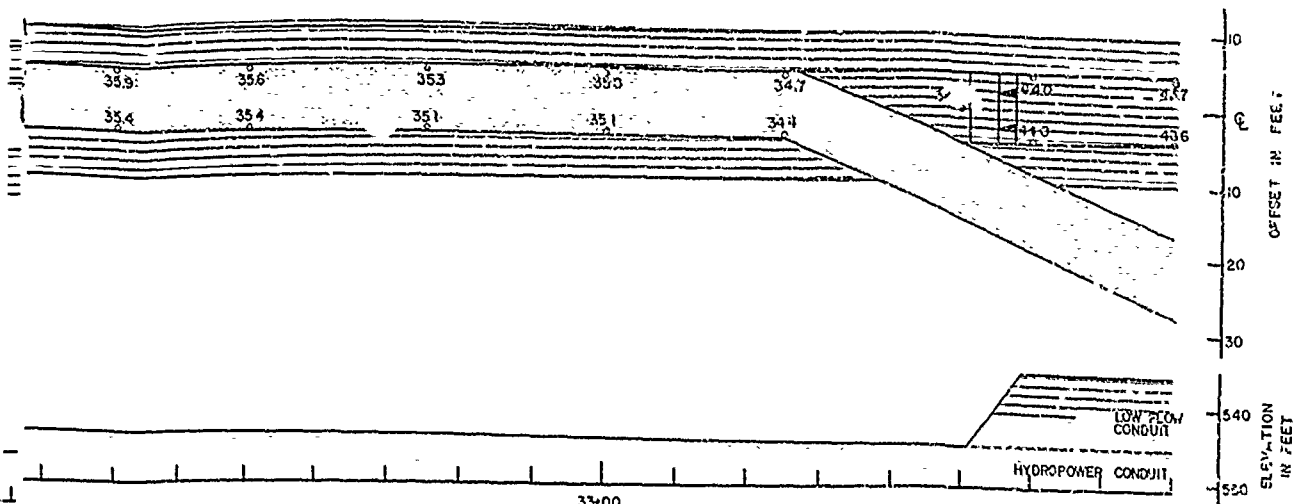


LEGEND

-  CLAY-SHALE, SOFT TO MODERATELY HARD, GREENISH TO DARK GRAY w/SAND AND SANDSTONE LENSES.
-  ALTERNATING CLAY SHALE AND SANDSTONE SEAMS, SOFT TO MODERATELY HARD, DARK GRAY, SANDSTONE, FINE TO MEDIUM GRAINED, COMPRISES UP TO 50% OF MATERIAL.
-  CLAY-SHALE, SOFT TO MODERATELY HARD, MOIST, DARK GRAY, SLIGHTLY FOSSILIFEROUS.
-  HIGHLY FOSSILIFEROUS
-  WATER SEEP

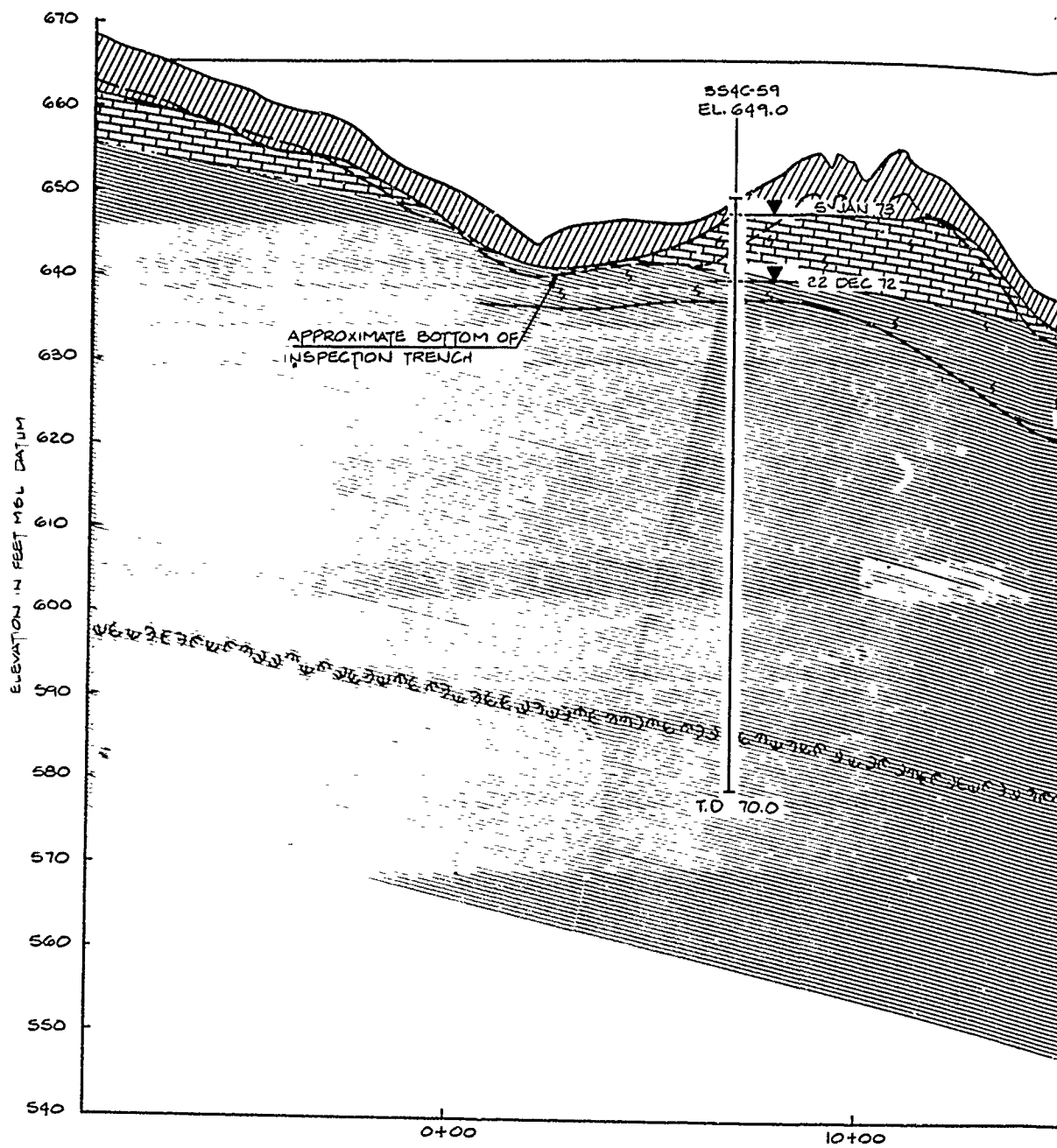
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY: H. BARNETT	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS
DRAWN BY: C. KIRBY	FOUNDATION REPORT OUTLET WORKS PLAN AND PROFILE
REVIEWED BY: R. BEHM	STA. 25+00 TO 31+00
SUBMITTED BY: ROBERT C. BEHM	SCL. 10, DATED:
CONTR. NO.	SHEET NO.
DRAWING NUMBER	SEQUENCE NO. 42



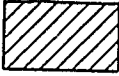

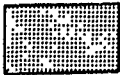
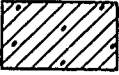


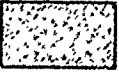





NOTE:
FOR LEGEND, SEE PLATE NO. 42.

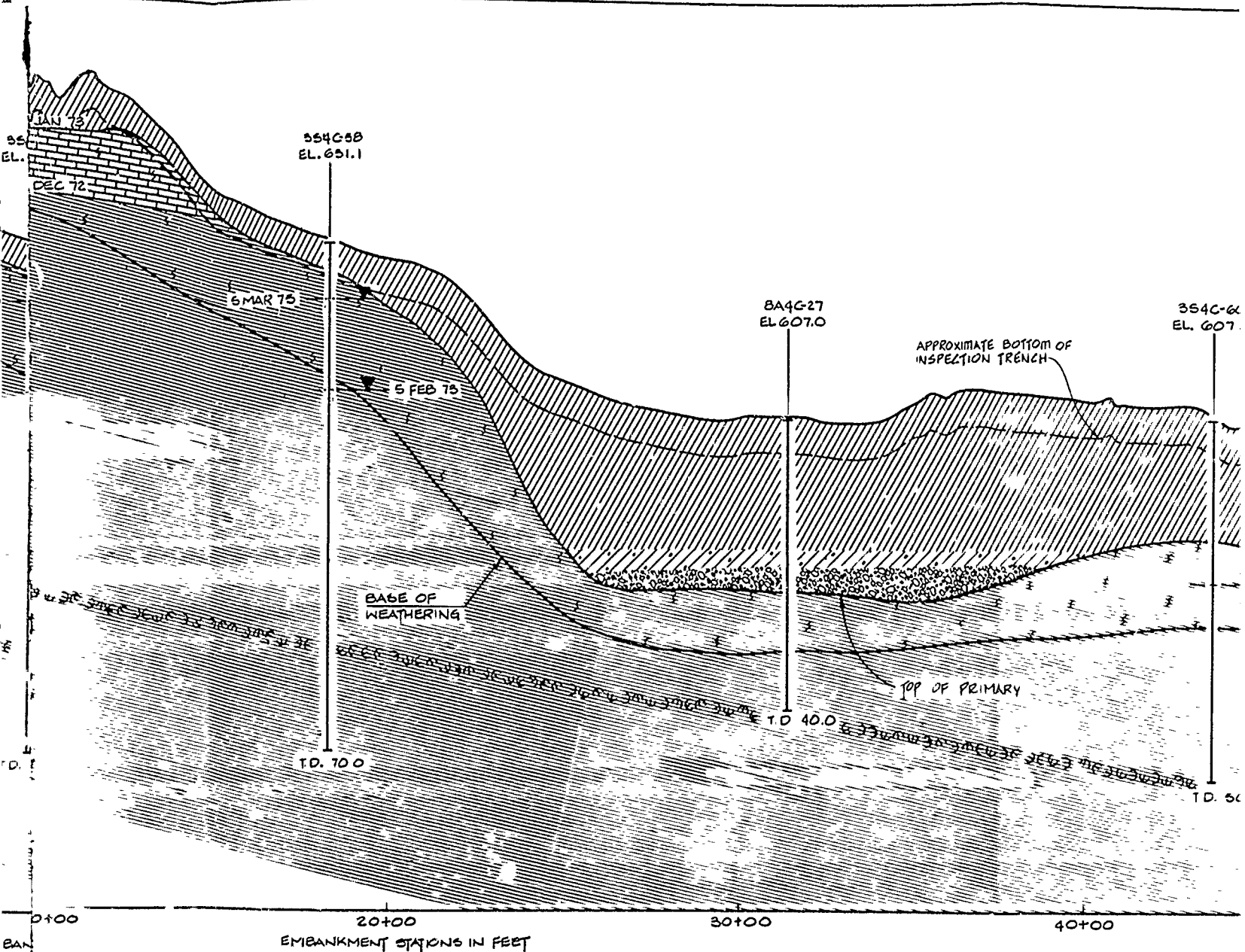
DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT	
CHECKED BY: R. BEHM		OUTLET WORKS	
SUBMITTED BY: ROBERT C. BEHM		STA. 31+00 TO 36+25	
CONTR. NO.		SHEET NO.	
DRAWING NUMBER		43	



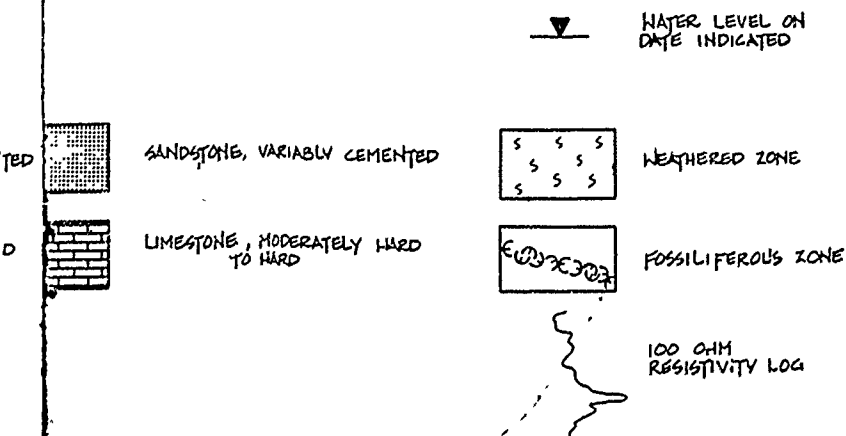
LEGEND

	CLAY, VARIABLY SILTY AND SANDY		SHALE & SANDY SHALE		SANDSTONE, VARIAB
	CLAY, GRAVELLY		SHALE CALCAREOUS		LIMESTONE, MODER TO HARD
	SAND, VARIABLY CLAYEY SANDY & GRAVELLY		SHALE, SANDY W/ NUMEROUS LENSES OF MODERATELY TO WELL CEMENTED SANDSTONE		
	GRAVEL, VARIABLY SANDY & CLAYEY		SHALE, NON-SANDY		

TOP OF DAM EL. 665.0



LEGEND

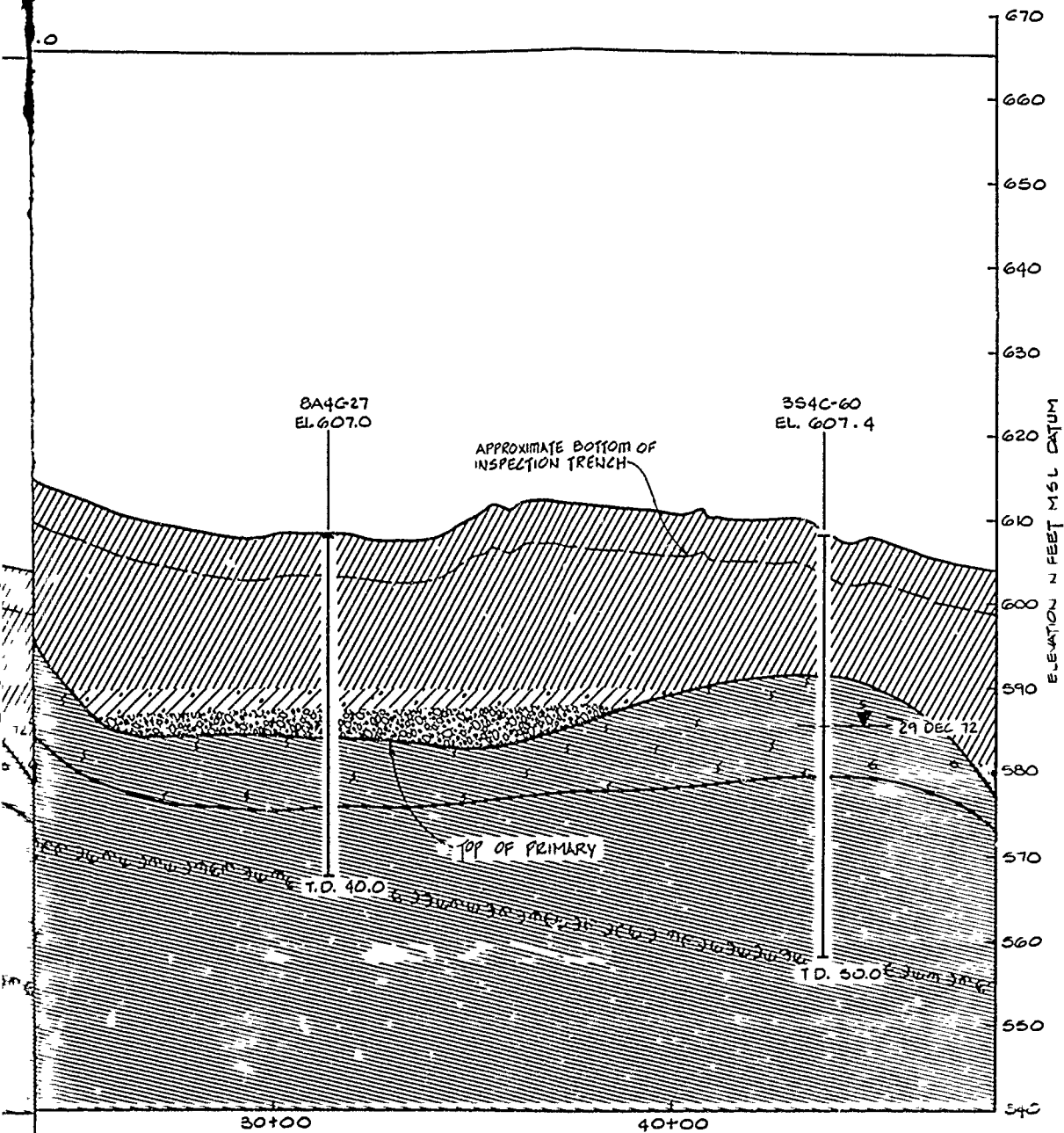


GENERAL NOTES

1. OVERBURDEN AND PRIMARY STRATA DESCRIPTIONS ARE GENERALIZED SEE SEQUENCES 305 THROUGH 336 FOR DETAILED LOGS OF BORINGS.

2. ABSENCE OF GROUND WATER LEVELS OPPOSITE BORING LOGS DOES NOT NECESSARILY MEAN THAT GROUND WATER WILL NOT BE ENCOUNTERED AT THE LOCATION OR WITHIN THE VERTICAL REACHES OF THE BORINGS. WATER LEVELS WILL FLUCTUATE DEPENDING ON SEASON AND RAINFALL.

3. FOR DETAIL OF CUTOFF AND INSPECTION TRENCH SEE SEQ. 171 AND 172.



GENERAL NOTES

LEVEL ON INDICATED

RED ZONE

UNSATURATED ZONE

PERMEABILITY LOG

8A 8-INCH AUGER BORING

6D 6-INCH DENISON BORING

6C 6-INCH CORE BORING

4C 4-INCH CORE BORING

3S 3-INCH SHELBY TUBE

2C 2-INCH CORE BORING

F FISHTAIL WASH BORING

C CORE BORING

T.D. TOTAL DEPTH

1. OVERBURDEN AND PRIMARY STRATA DESCRIPTIONS ARE GENERALIZED SEE SEQUENCES 225 THROUGH 236 FOR DETAILED LOGS OF BORINGS.

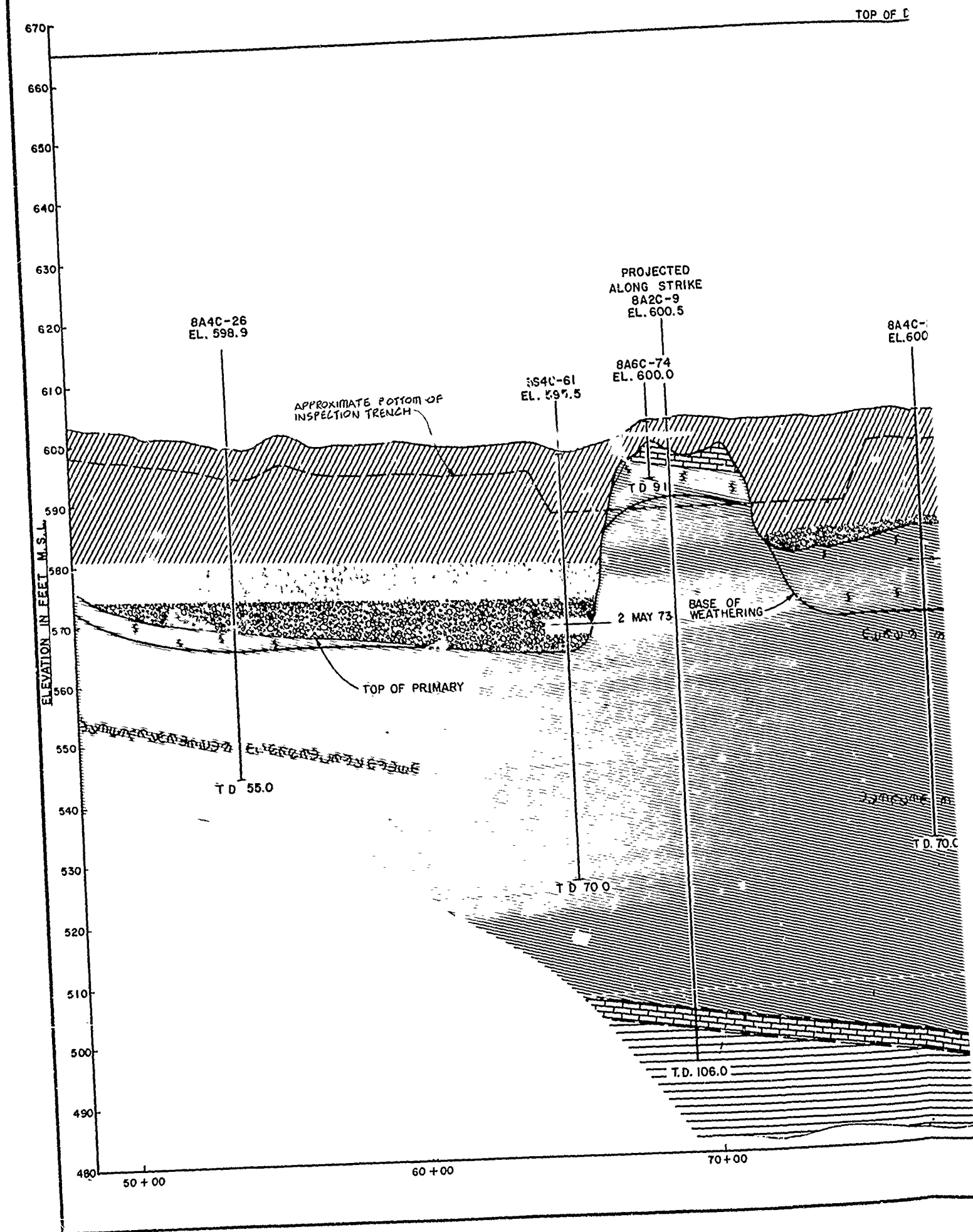
2. ABSENCE OF GROUND WATER LEVELS OPPOSITE BORING LOGS DOES NOT NECESSARILY MEAN THAT GROUND WATER WILL NOT BE ENCOUNTERED AT THE LOCATION OR WITHIN THE VERTICAL REACHES OF THE BORINGS. WATER LEVELS WILL FLUCTUATE DEPENDING ON SEASON AND RAINFALL.

3. FOR DETAIL OF CUTOFF AND INSPECTION TRENCH SEE SEC. 171 AND 172.

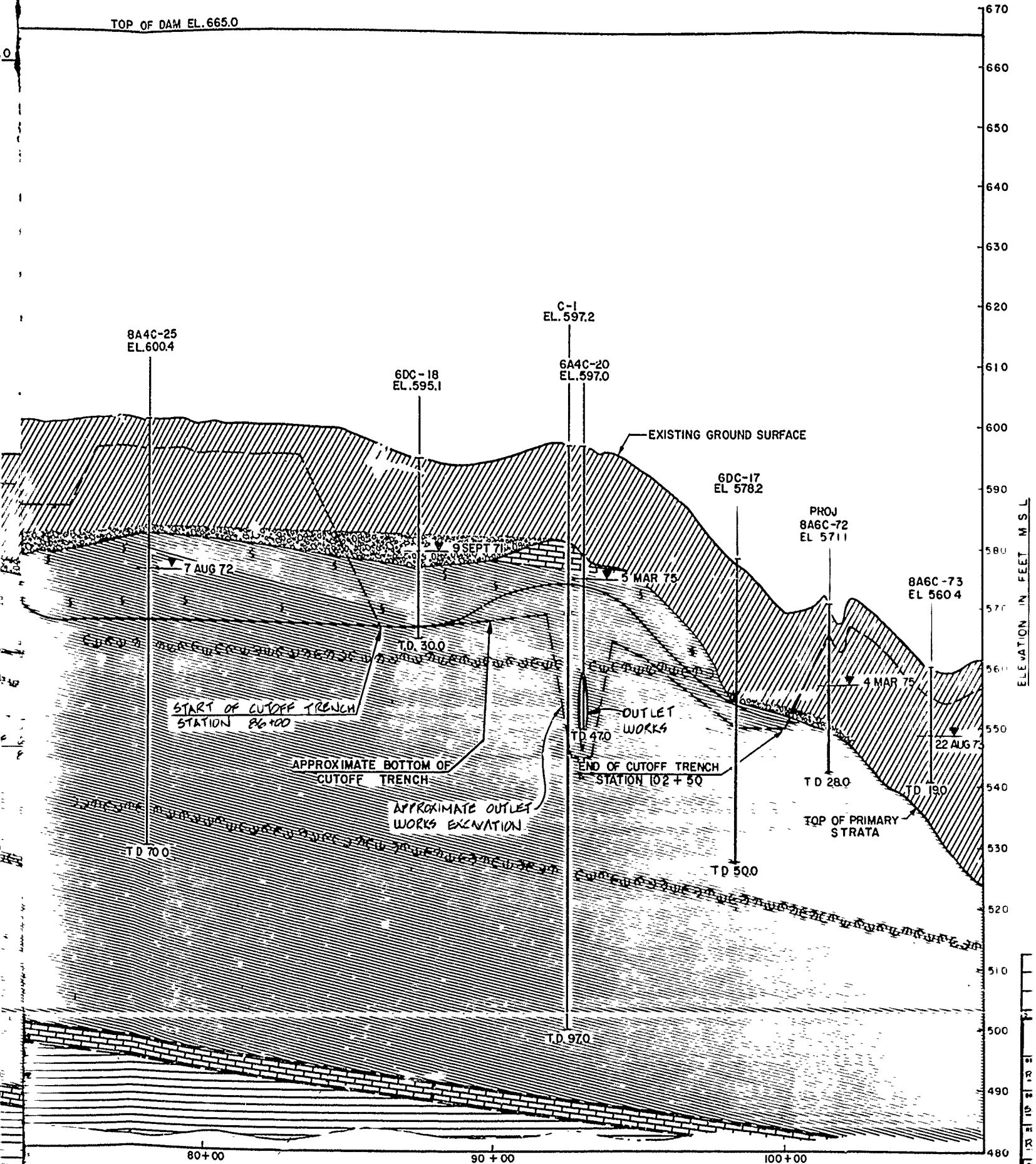
RECORD DRAWING-WORK AS BUILT

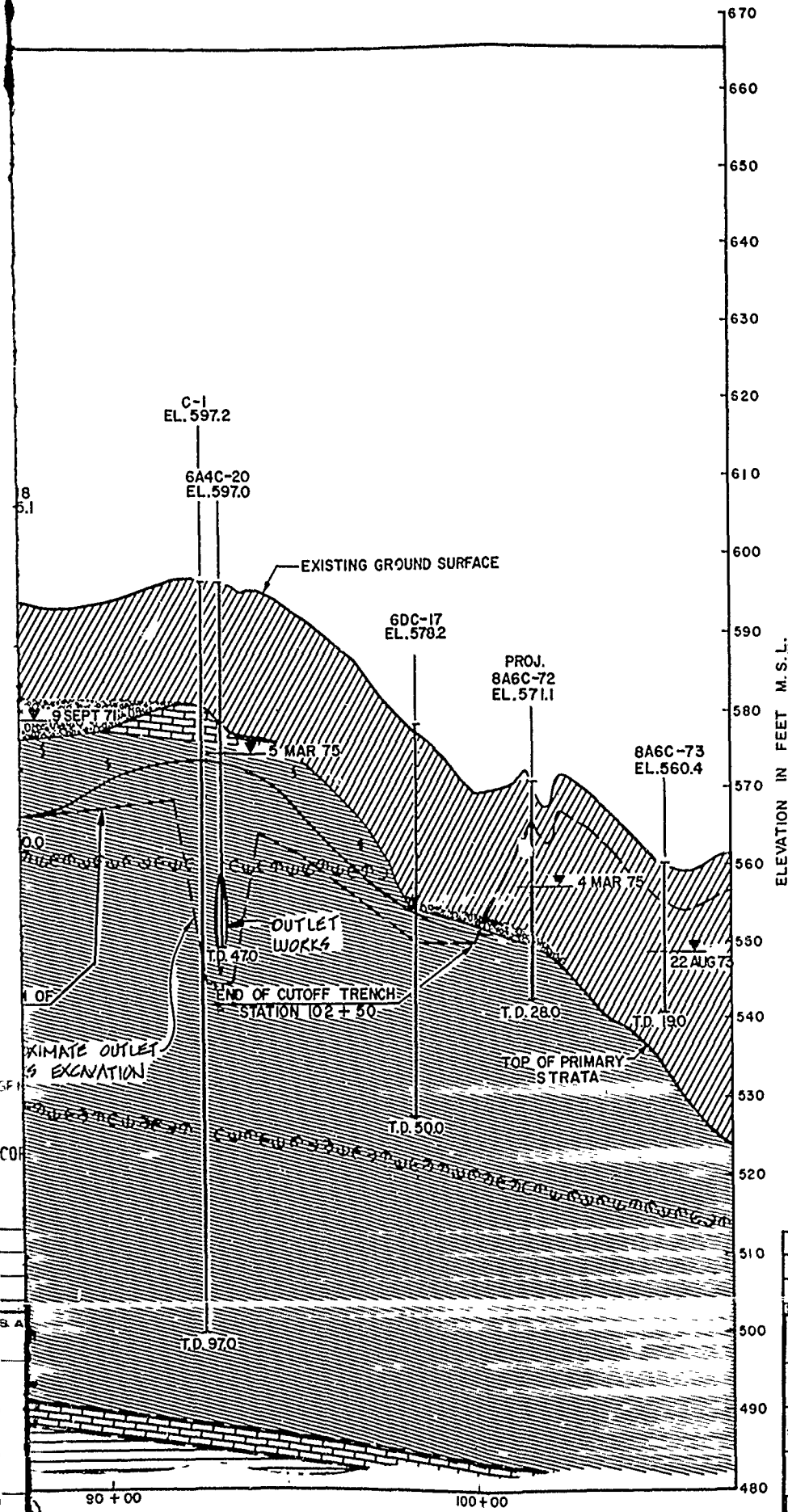
REVISION NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS			
RAY ROBERTS LAKE ELM FORK TRINITY RIVER, TEXAS EMBANKMENT GEOLOGIC PROFILE EMBANKMENT CENTERLINE (STA. 0+00 TO STA. 48+00)			
DESIGNED BY:	R. HAGEN		
DRAWN BY:	H. RUTHERFORD		
REVIEWED BY:	R. HAGEN		
SUBMITTED BY:	M. GREEN		
ENGINEER	INVITATION NO. DACW 63-82-B-0025 DATE: MAR 1982		
	CONTRACT NO. DACW 63-82-C-0083		REQUIRE NO. 44
	DRAWING NUMBER		SHEET NO. OF

TO ACCOMPANY FOUNDATION REPORT



TOP OF DAM EL. 665.0



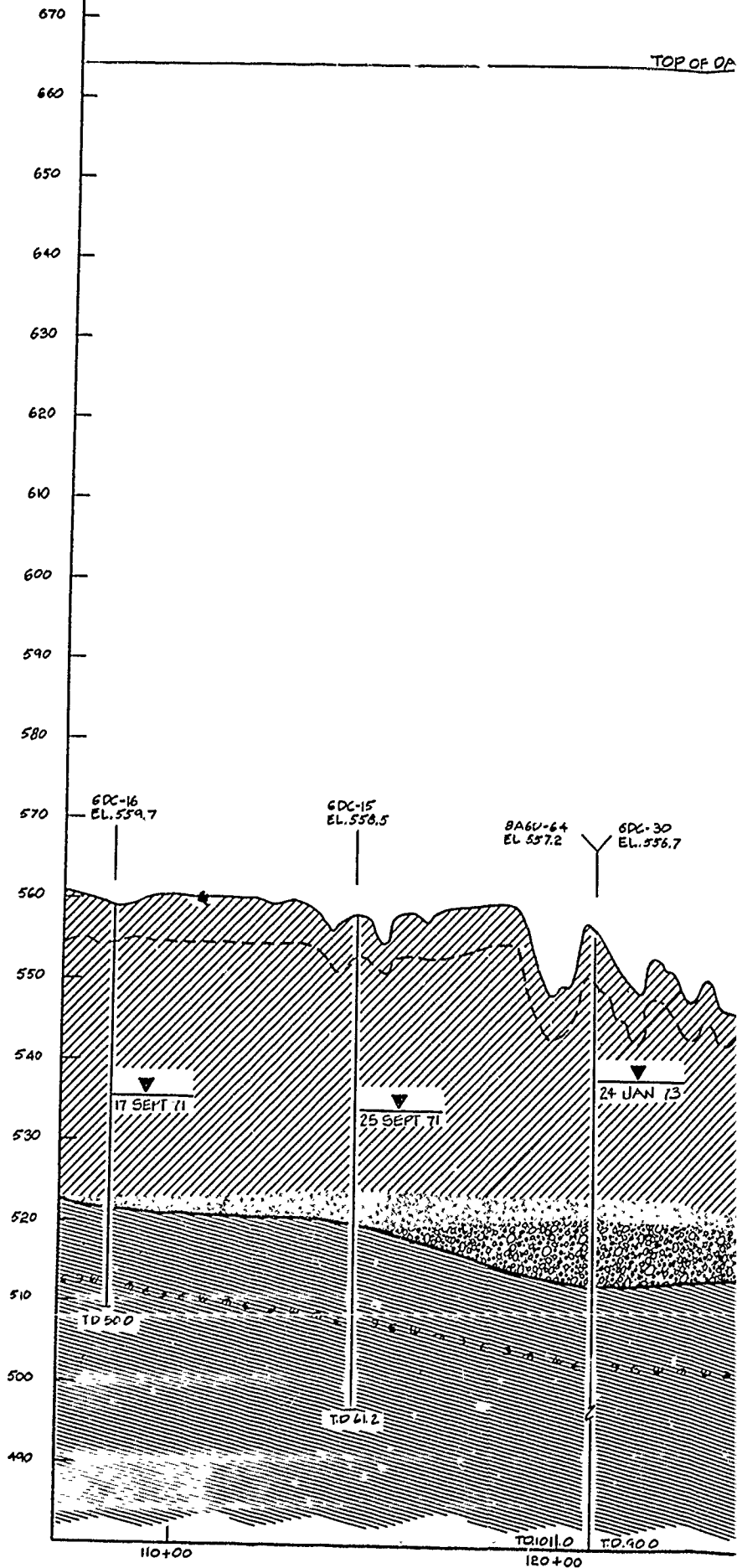


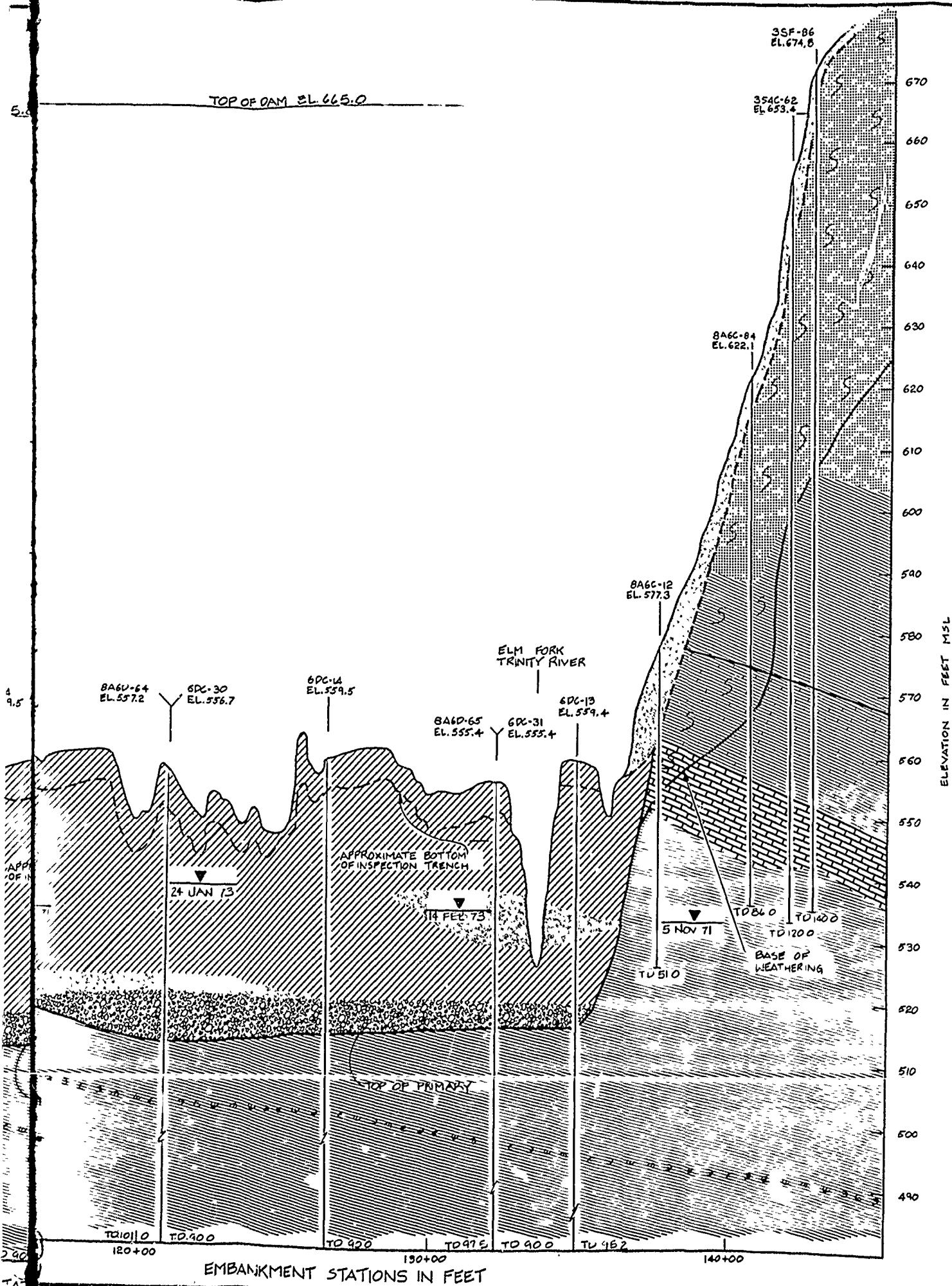
FOR LEGEND AND GENERAL NOTES, SEE SEQ 199

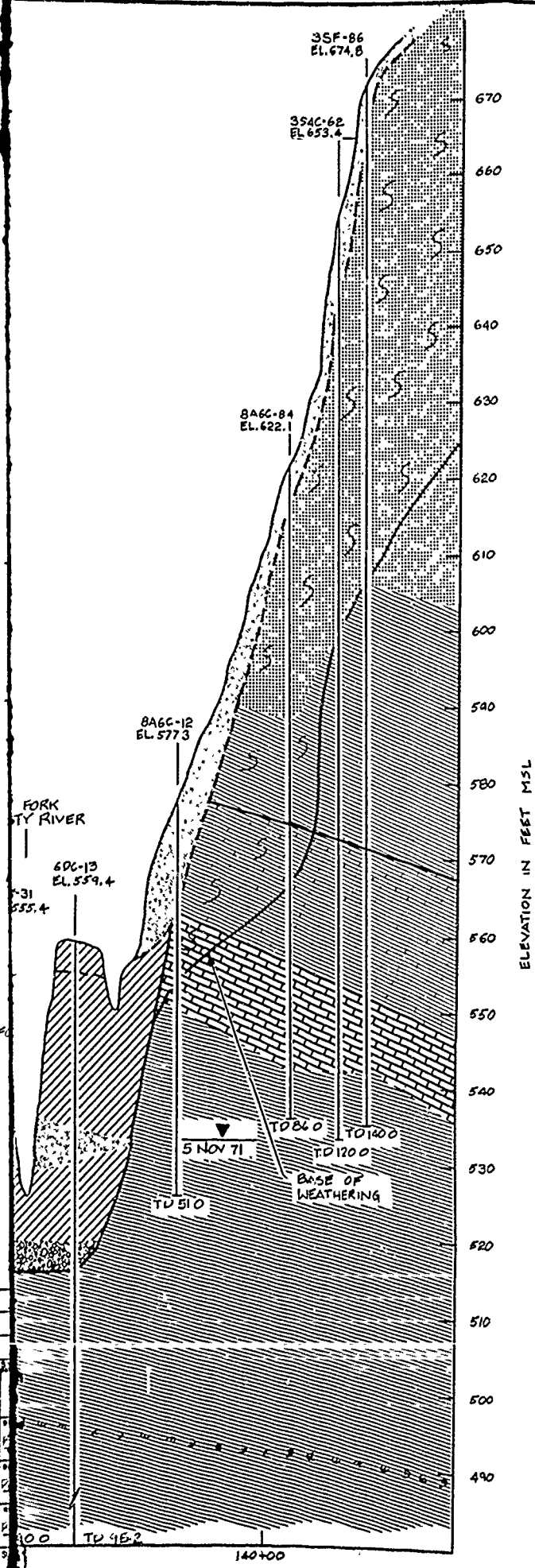
RECORD DRAWING-WORK AS BUILT

SYM	NO	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY R. HAGEN				
DRAWN BY S. KOMACK				
REVIEWED BY R. HAGEN				
SUBMITTED BY A. Green				
INVITATION NO. DACW 63-82-C-0083 DATE: MAR 1982				
CONTRACT NO. DACW 63-82-C-0083				
DRAWING NUMBER				
SHEET NO. OF 45				

TO ACCOMPANY FOUNDATION REPORT





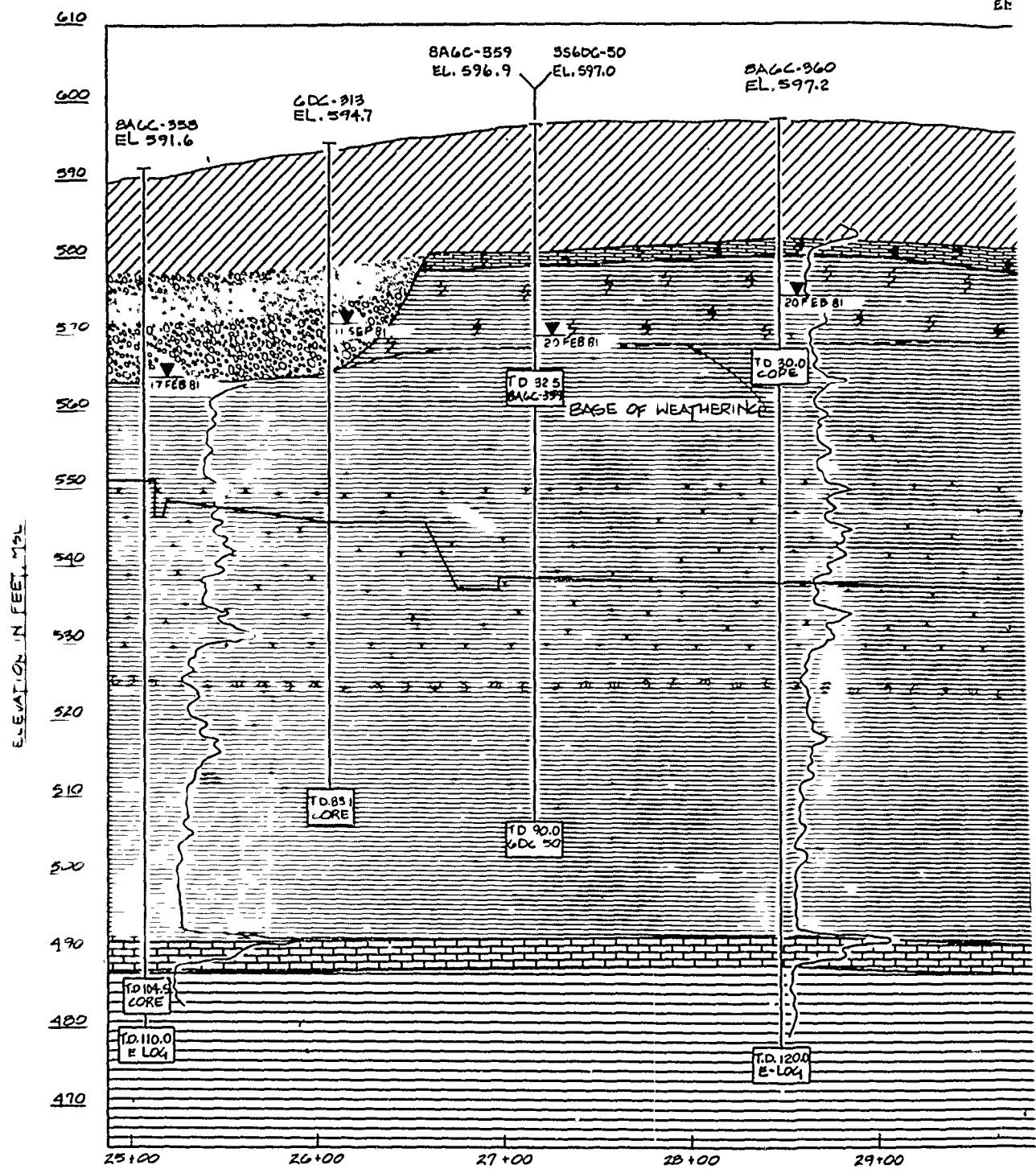


FOR LEGEND AND GENERAL NOTES SEE SEQ 19.1.

RECORD DRAWING-WORK AS BUILT

REV	LOG NO.	ACTION	DATE	DESCRIPTION OF REVISION
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY:	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS			
DRAWN BY:	EMBANKMENT GEOLOGIC PROFILE EMBANKMENT CENTERLINE (STATION 107+00 TO 142+25)			
REVIEWED BY:	M GREEN			
SUBMITTED BY:	INVITATION NO. DACW43-82B-0025 DATE: MAR, 1983			
ENGINEER:	CONTRACT NO. DACW43-82 C 0083			
	DRAWING NUMBER			SHEET NO. 4

TO ACCOMPANY FOUNDATION REPORT



IT

OBJEC
1.2

PPR

IN

EMBANKMENT

C-1 (PROJECTED)
EL. 597.2

8AGC-361
EL. 594.6

6DC-314
EL. 594.3

8AGC-362
EL. 587.0

6DC 315
EL. 583.7

6A4C-21
EL. 581.0

31 JAN 81

TD 24.0
8AGC-361

TOP OF PRIMARY

APPROX LIMIT OF EXCAVATION

9 FEB 81

TD 28.6
CORE

8 MAY 7

19 SEP 80

TD 52.2
CORE

TD 89.0
6DC 314

TD 97.0
CORE

TD 94.8
CORE

TD 110.0
E-LOG

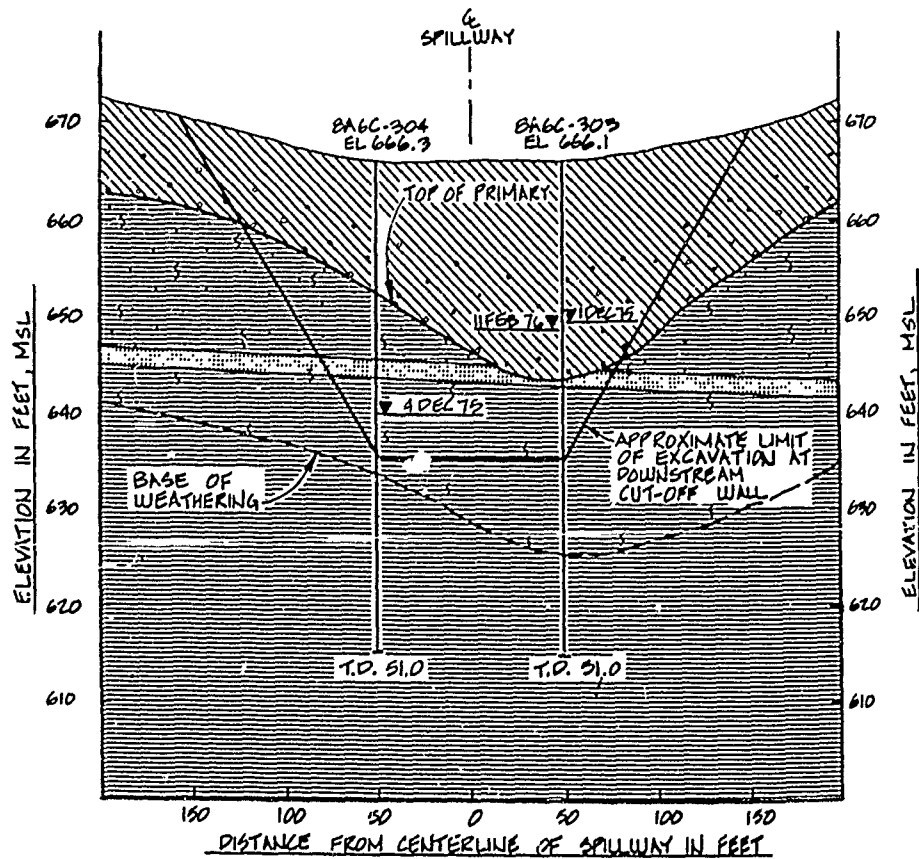
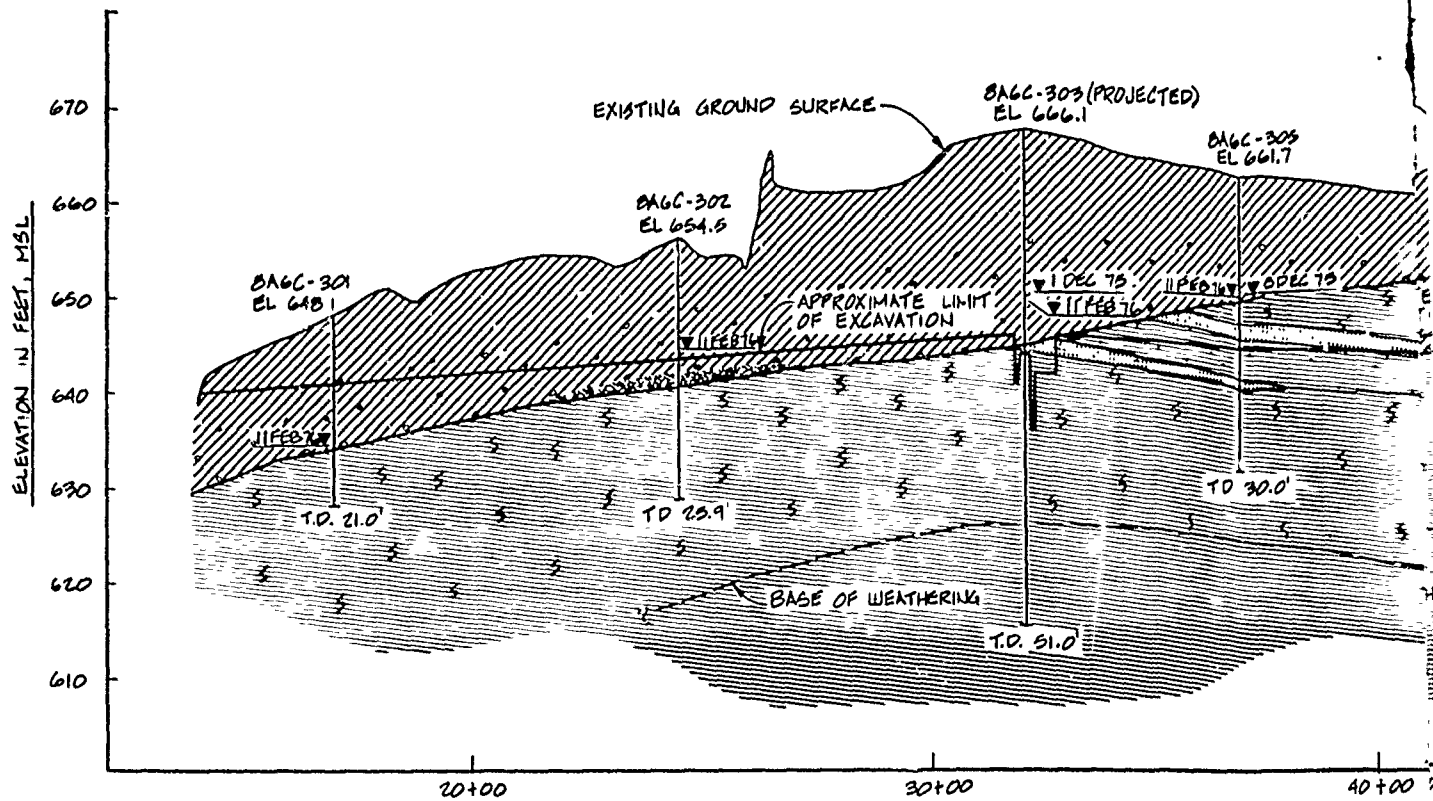
TD 120.0
E-LOG

00 30+00 31+00 32+00 33+00 34+00 35+00 36

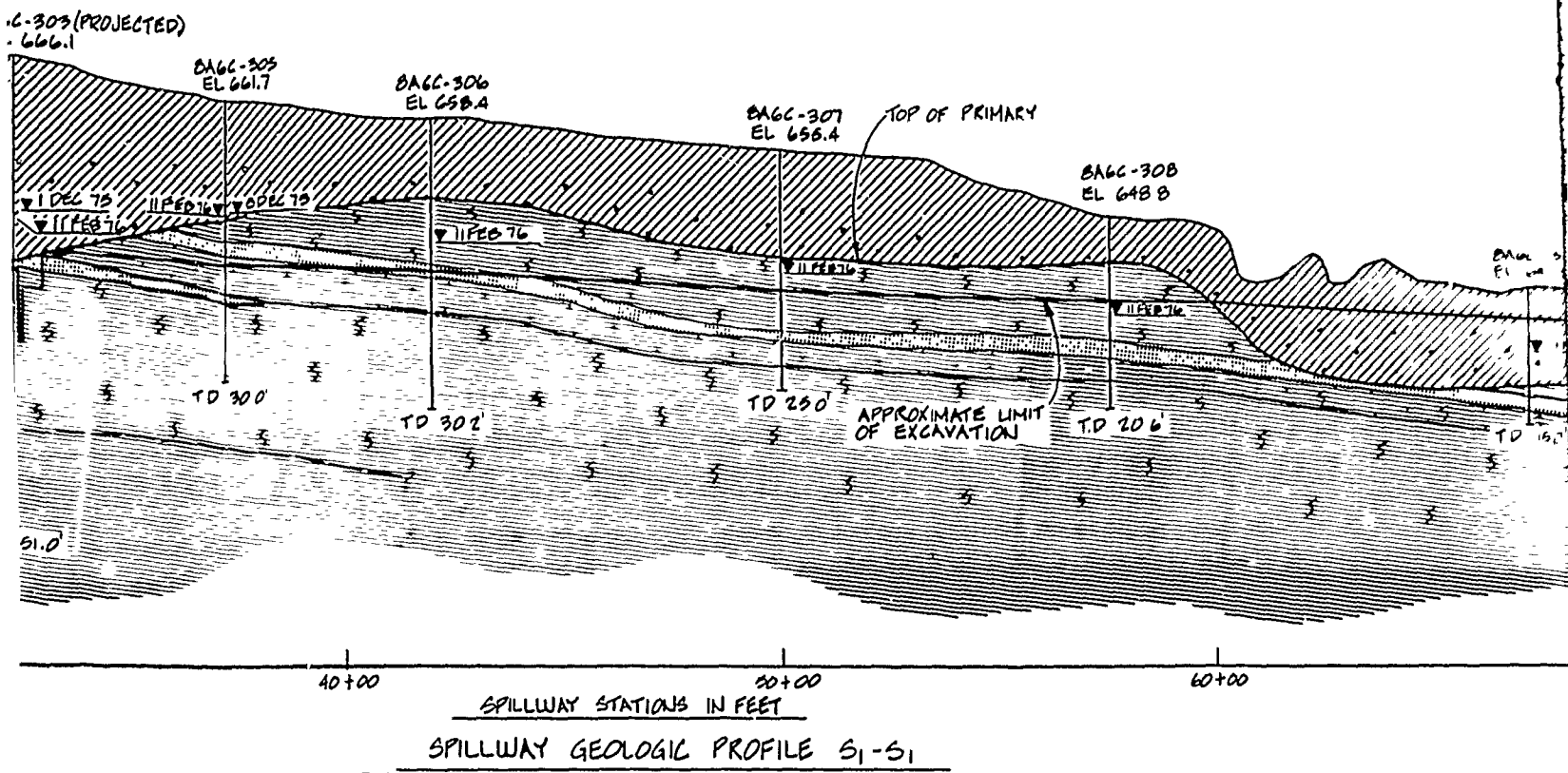
DISTANCES IN STATIONS ALONG OUTLET WORKS

FOR LEGEND AND GENERAL NOTES SEE SEE Q 199.

RECORD DRAWING-WORK AS BUILT

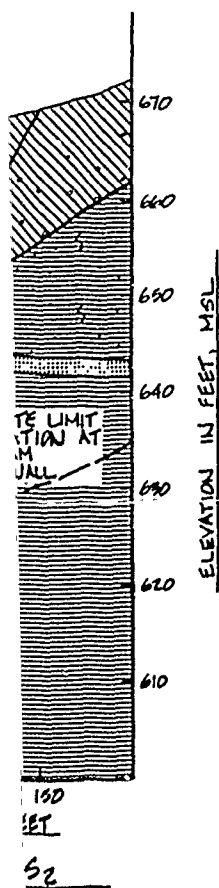


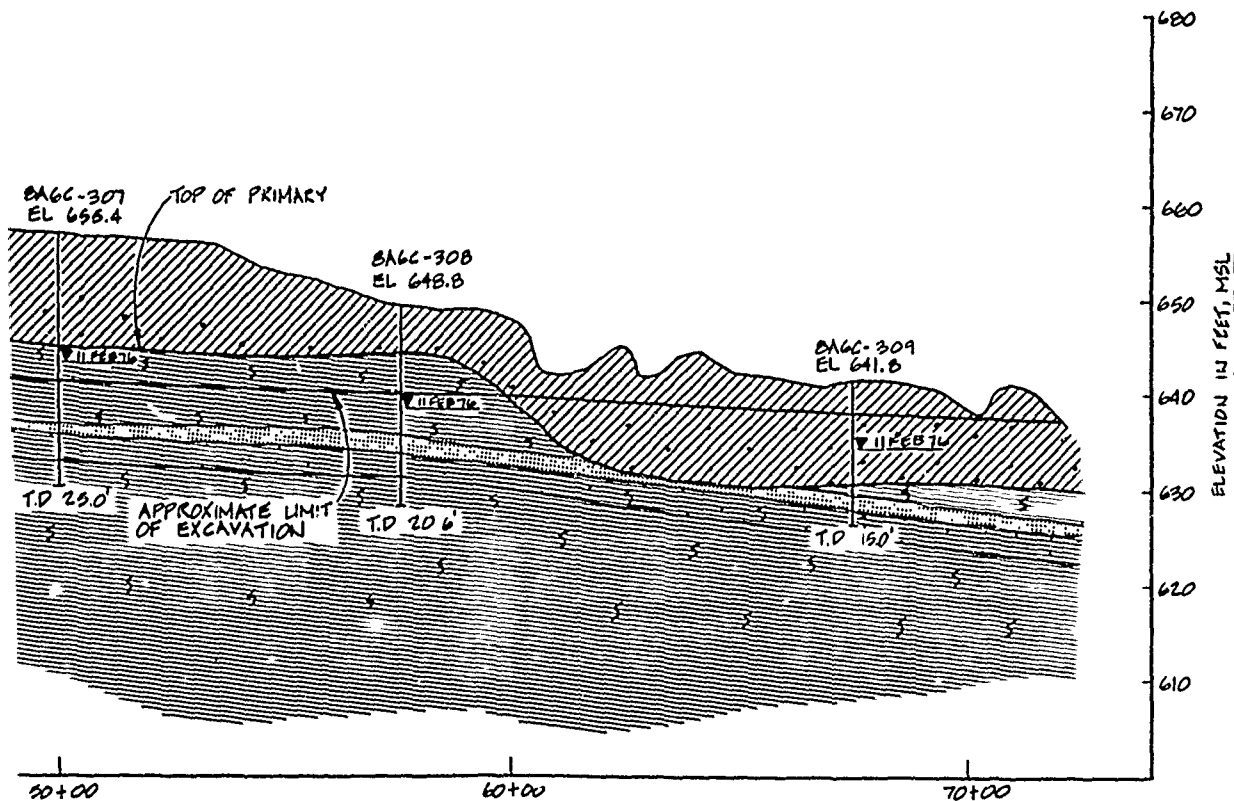
SPILLWAY GEOLGIC SECTION S2-S2



NOTES:

1. FOR LEGEND AND GENERAL NOTES SEE SE
2. FOR LOCATION OF PROFILE AND SECTION SE





PROFILE S1-S1

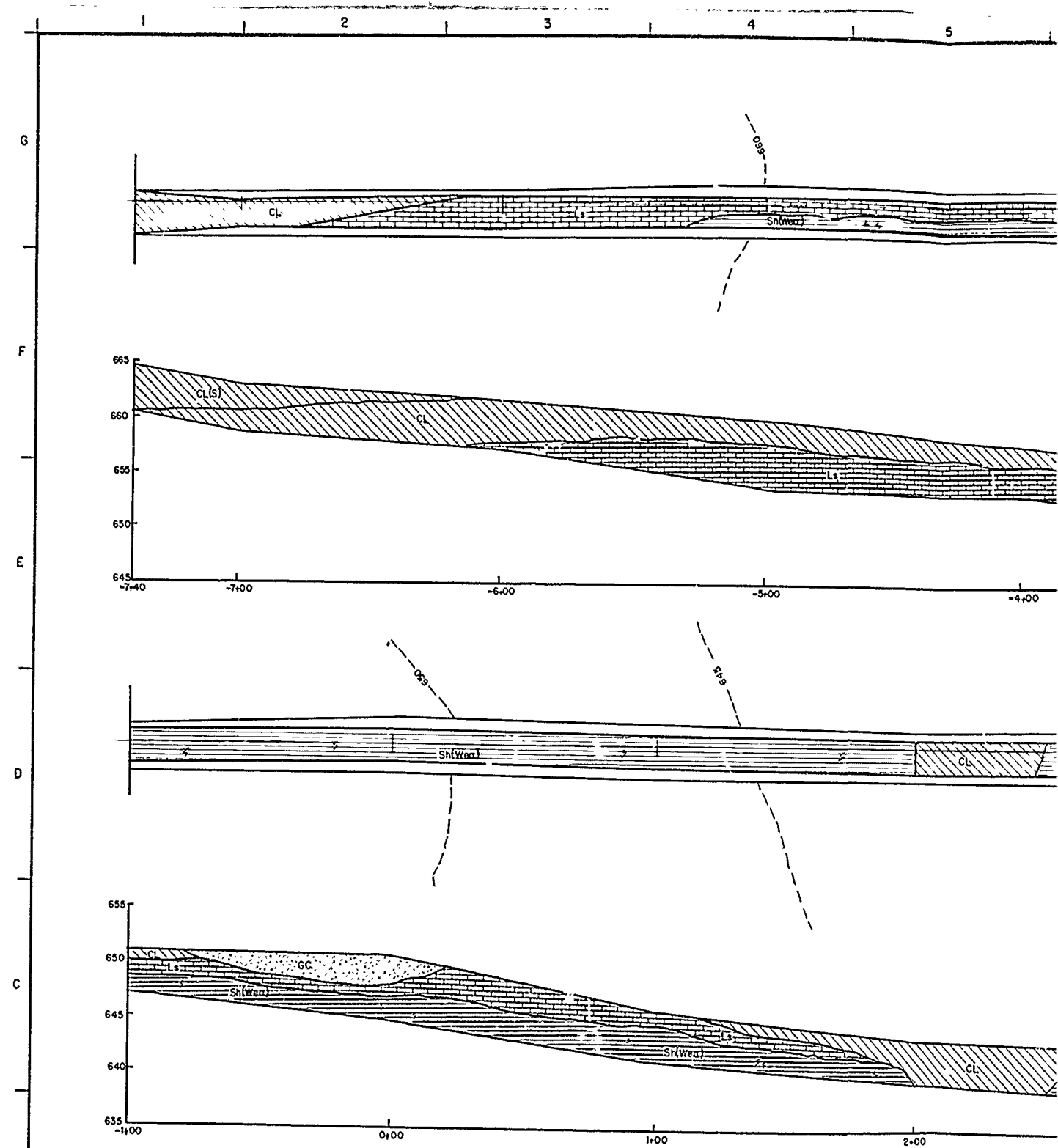
NOTES:

1. FOR LEGEND AND GENERAL NOTES SEE SEQ. 199.
2. FOR LOCATION OF PROFILE AND SECTION SEE SEQ. 180.

RECORD DRAWING-WORK AS BUILT

REVISED BY:	R. WAGEN	DATE:		DESCRIPTION OF REVISION:
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				
DESIGNED BY:	R. REED	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS		
REVIEWED BY:	R. WAGEN	SPILLWAY, APPROACH CHANNEL AND DISCHARGE CHANNEL		
SUBMITTED BY:		GEOLOGIC PROFILE S1-S1 AND SECTION S2-S2		
M. GREEN		INVITATION NO. DACHW63-82-0002E	DATE: MAR, 1982	
ENGINEER:		CONTRACT NO. DACHW63-82-C-0083	SHEET NO. 48	

TO-ACCOMPANY-FOUNDATION-REPORT

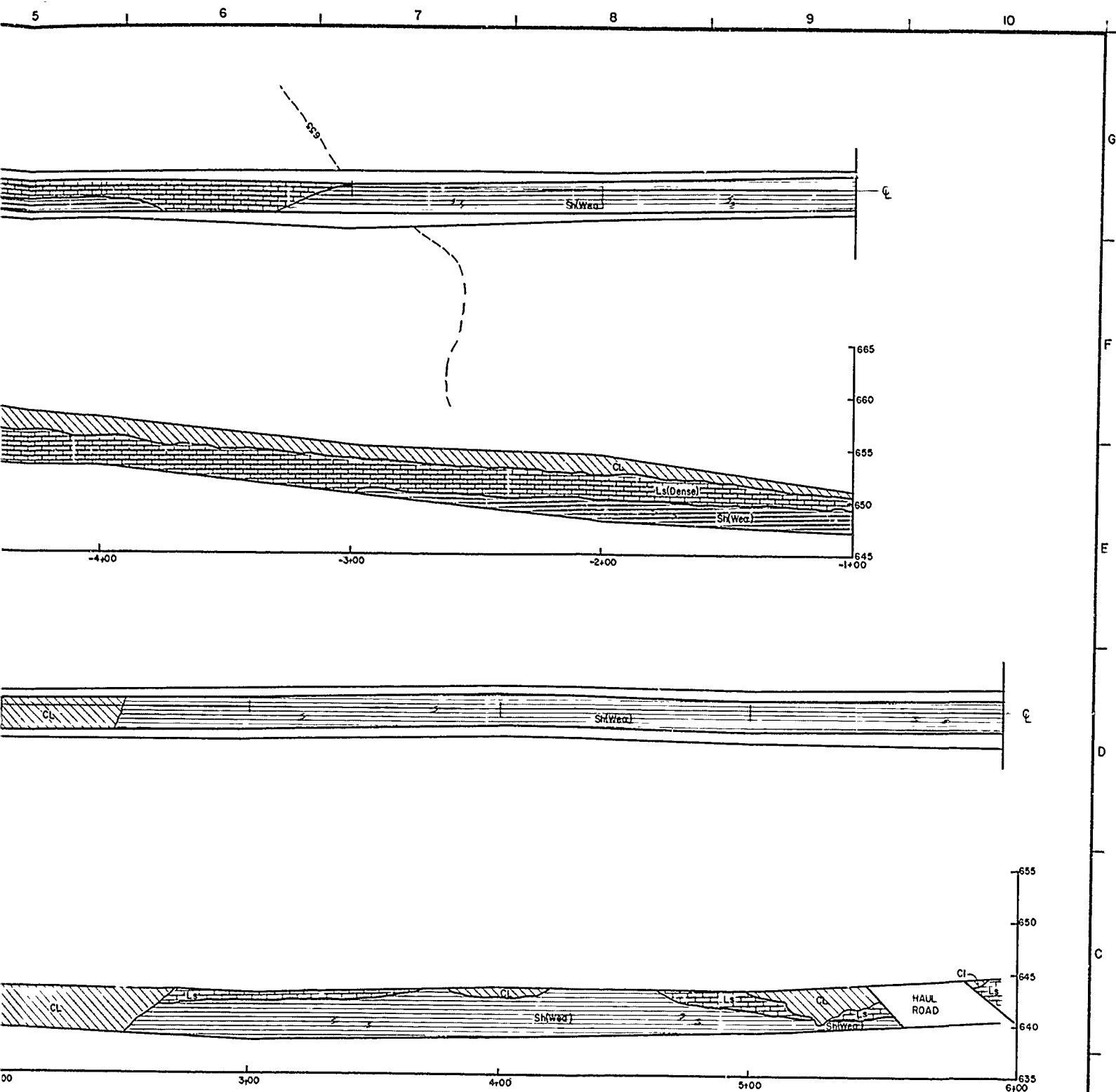


LEGEND

- CLAY, MEDIUM TO HIGH PLASTICITY, DARK BROWN
- CLAY, LEAN
- CLAY, LEAN, SANDY
- CLAY, GRAVELLY
- CLAY, HIGH PLASTICITY, ORGANIC, BLACK
- SAND, CLAYEY, FINE
- SAND, FINE, POORLY GRADED
- GRAVEL, VARIABLY CLAYEY
- CLAY, STIFF, HAS APPEARANCE OF WEATHERED SHALE INCLUDING SHALE-LIKE STRUCTURE.
- SHALE, WEATHERED
- SHALE, UNWEATHERED

NOTES

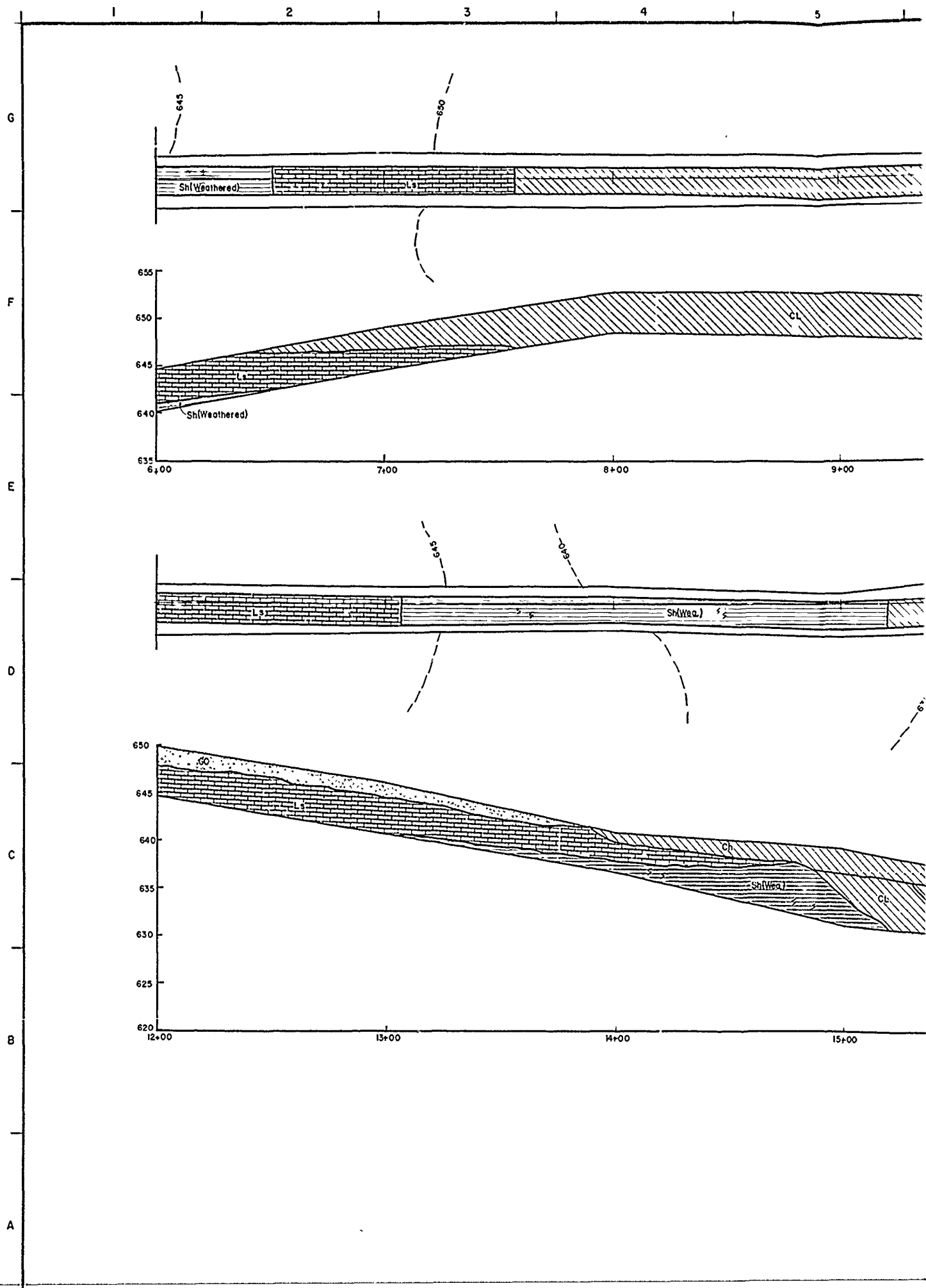
- 1. SECTION
- 2. NO INSI
- 3. PLAN V
- GEOLOG

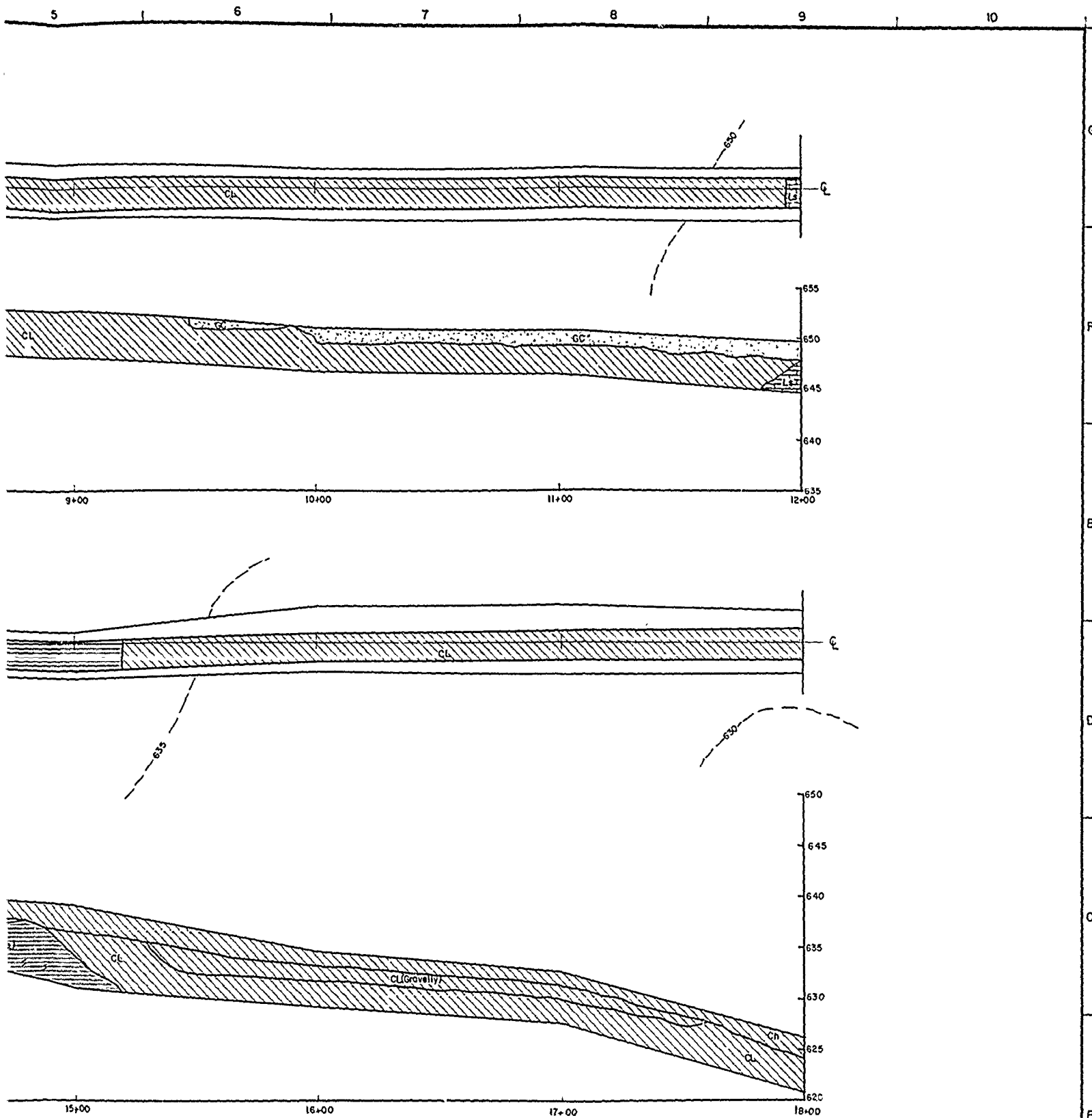


NOTES

1. SECTIONS REPRESENT UPSTREAM(LEFT) FACE OF INSPECTION TRENCH
2. NO INSPECTION TRENCH WAS EXCAVATED BETWEEN STATIONS 117+50 AND 125+50.
3. PLAN VIEW OF INSPECTION TRENCH PRESENTS GEOLOGY OF THE FLOOR ONLY. GEOLOGY OF SIDE SLOPES IS PRESENTED IN THE SECTION.

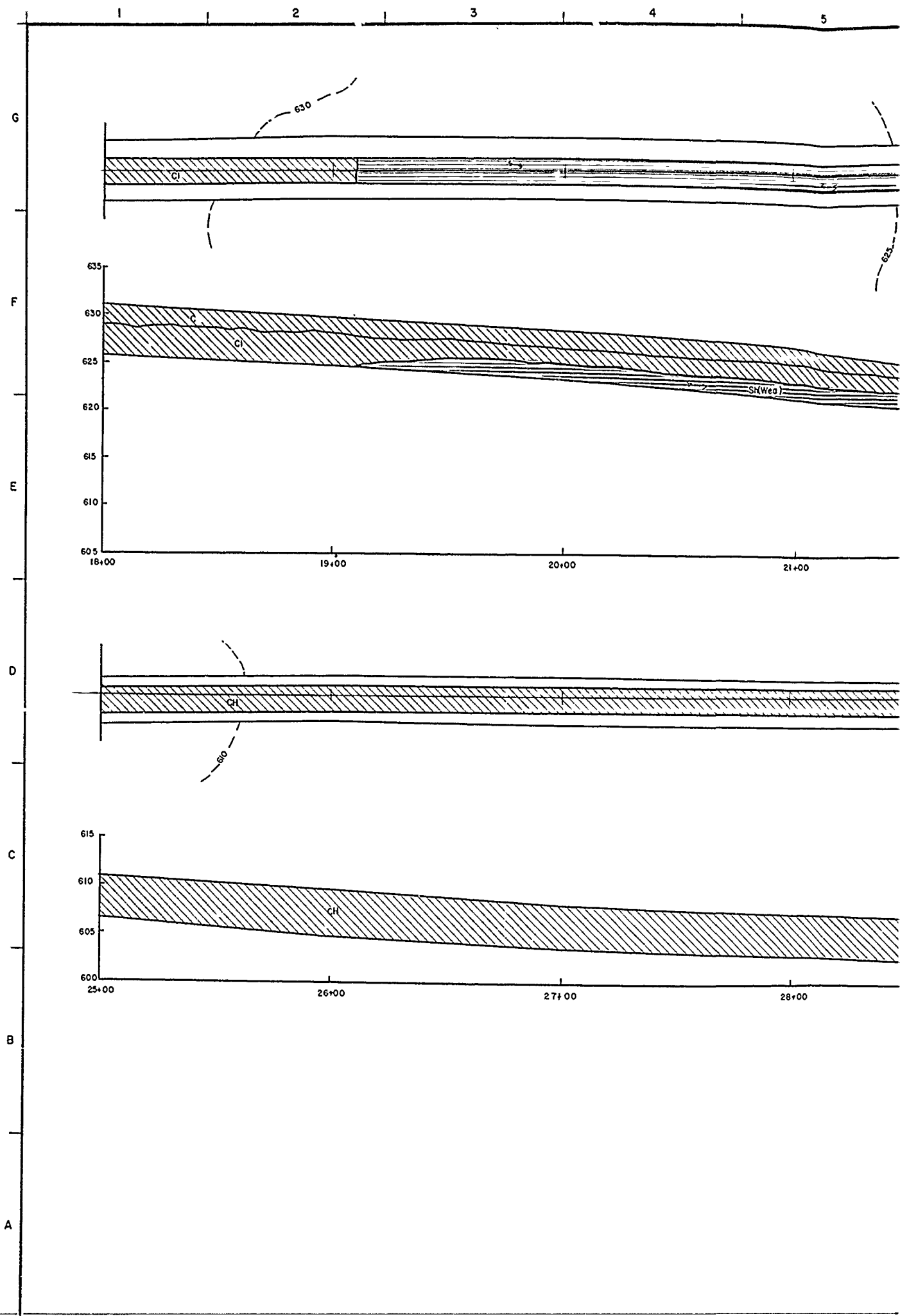
DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT INSPECTION TRENCH AS-BUILT PLAN AND PROFILE STA. -7+40 TO 6+00	
REVIEWED BY: R. BEHM			
SUBMITTED BY: ROBERT C. BEHM		SOL. NO.	DATED:
ENGINEER:		CONTR. NO.	SEQUENCE NO.
		DRAWING NUMBER	SHEET NO.

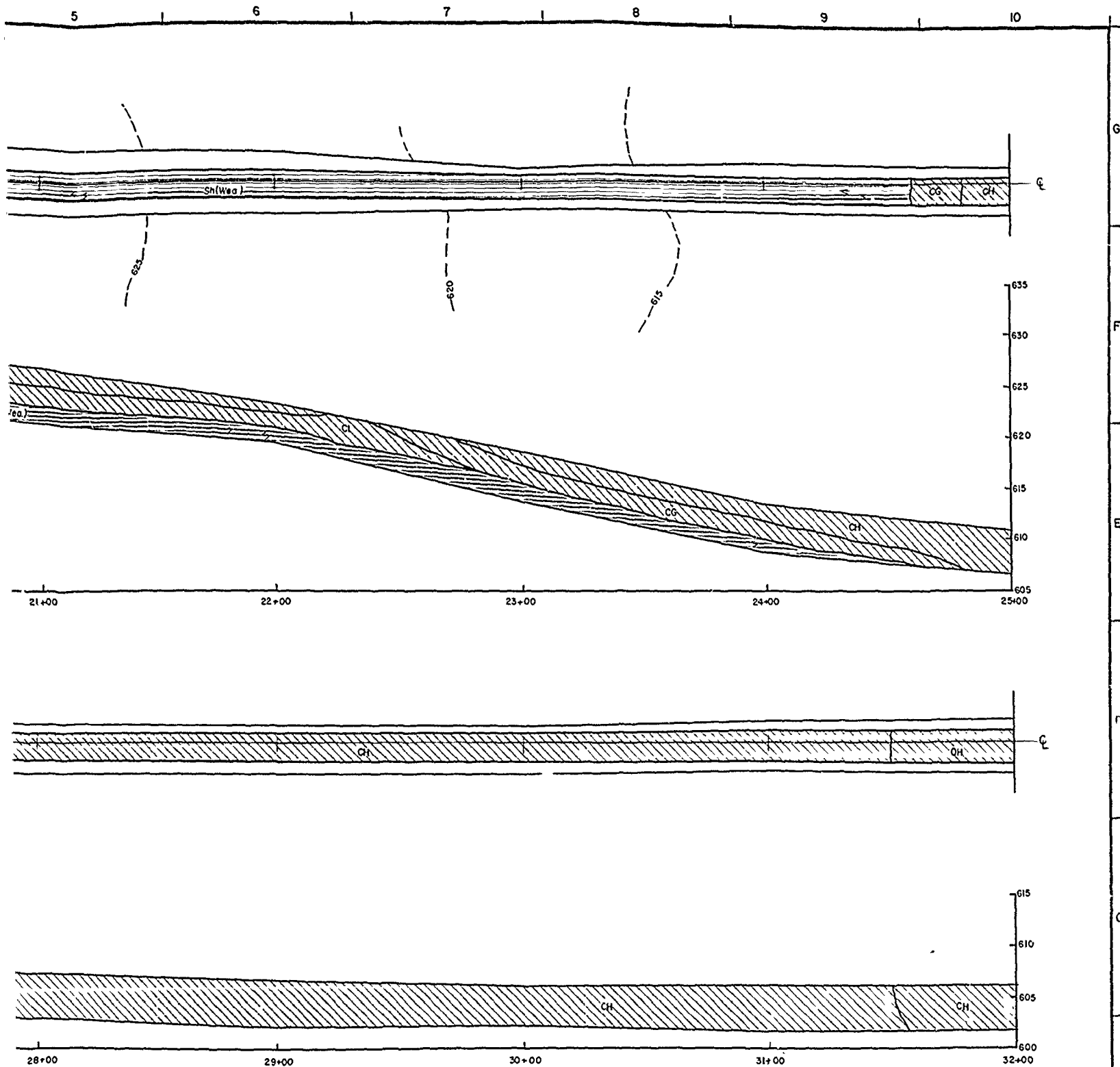




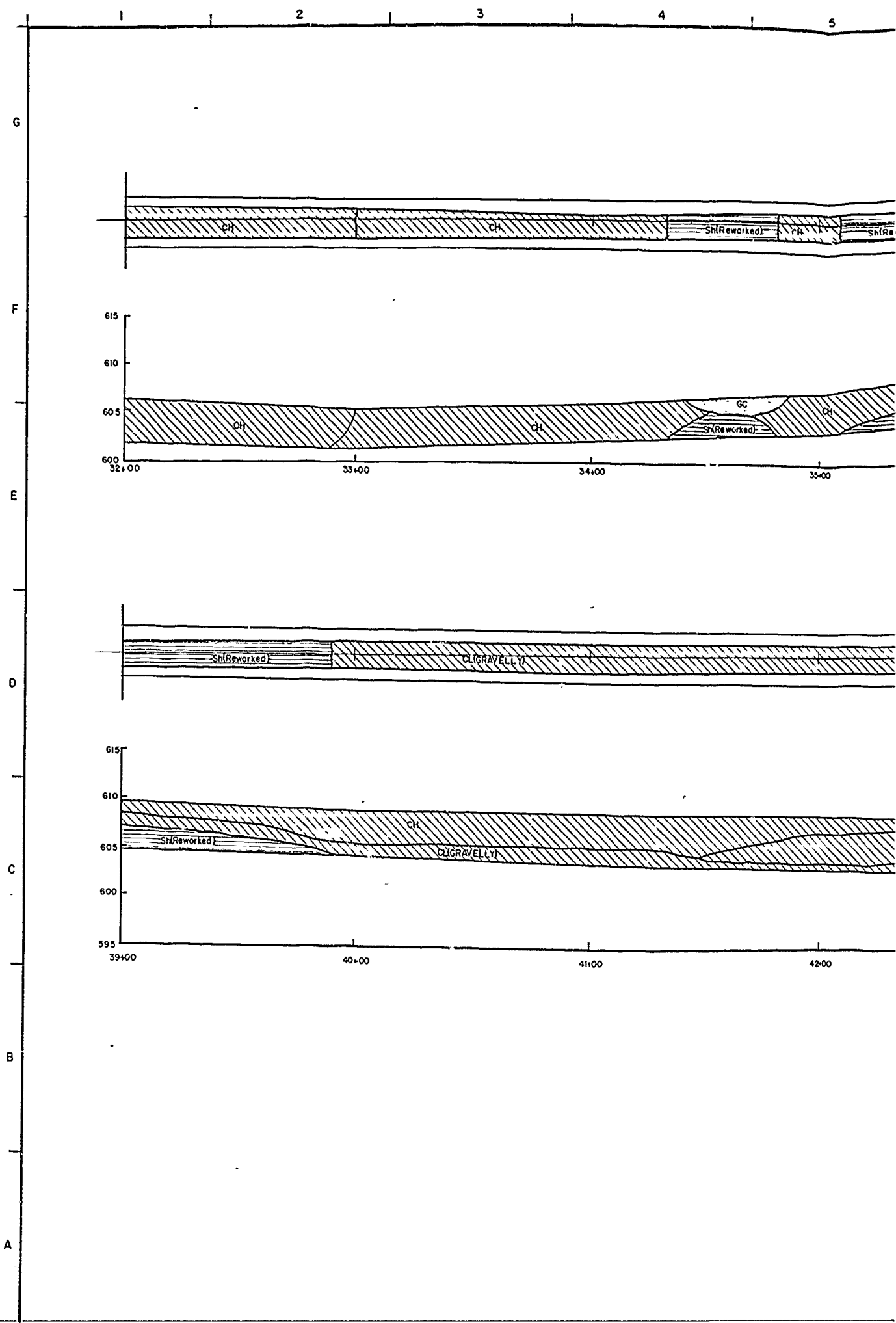
DESIGNED BY: H. BARNETT		DRAWN BY: C. KIRBY		REVIEWED BY: R. BEHM		SUBMITTED BY: ROBERT C. BEHM		SOL. NO.		DATED:		SEQUENCE NO.	
CONTR. NO.		DRAWING NUMBER		SHEET NO.		OF		50					

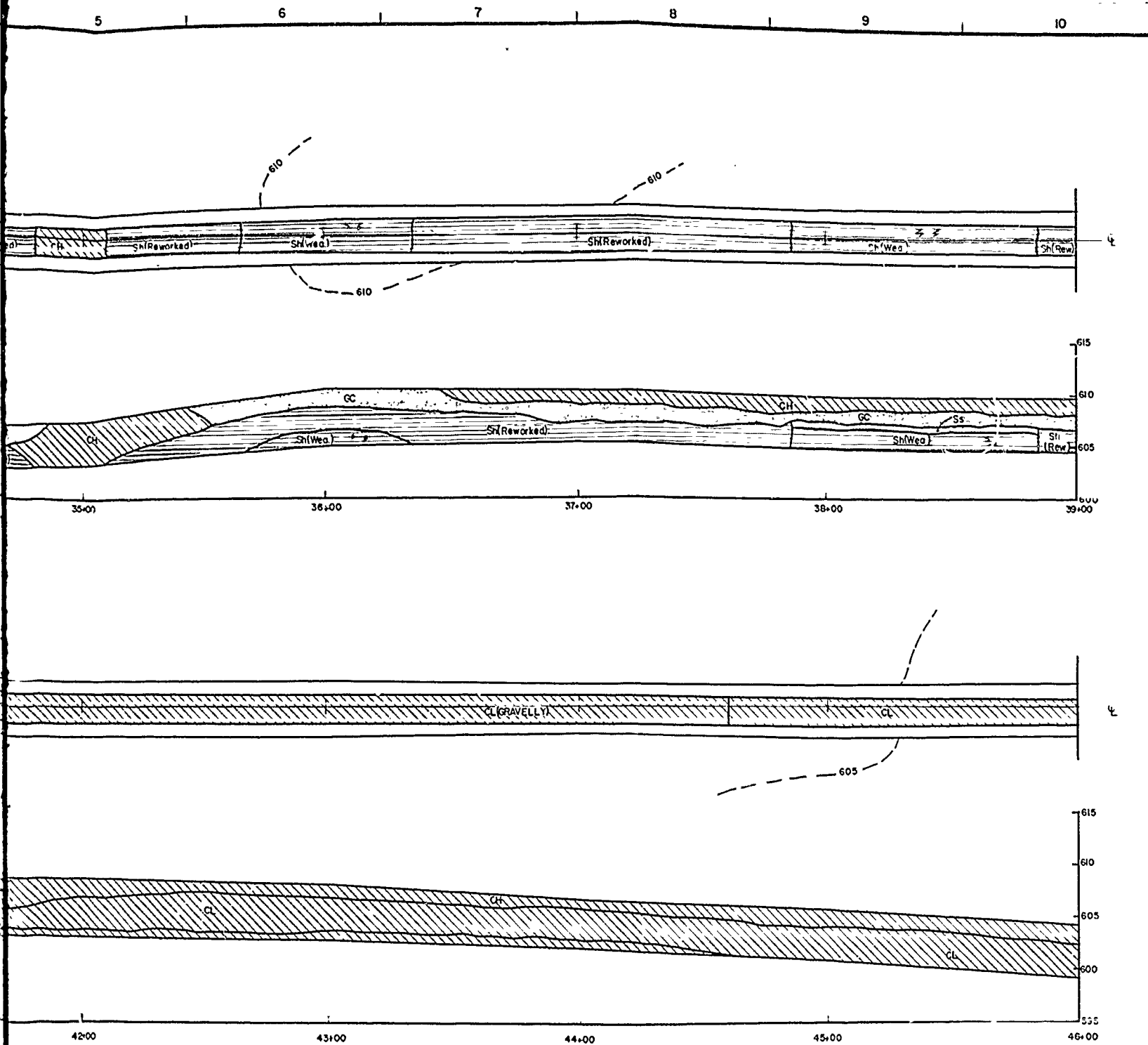
TO ACCOMPANY SUBMITTAL REPORT



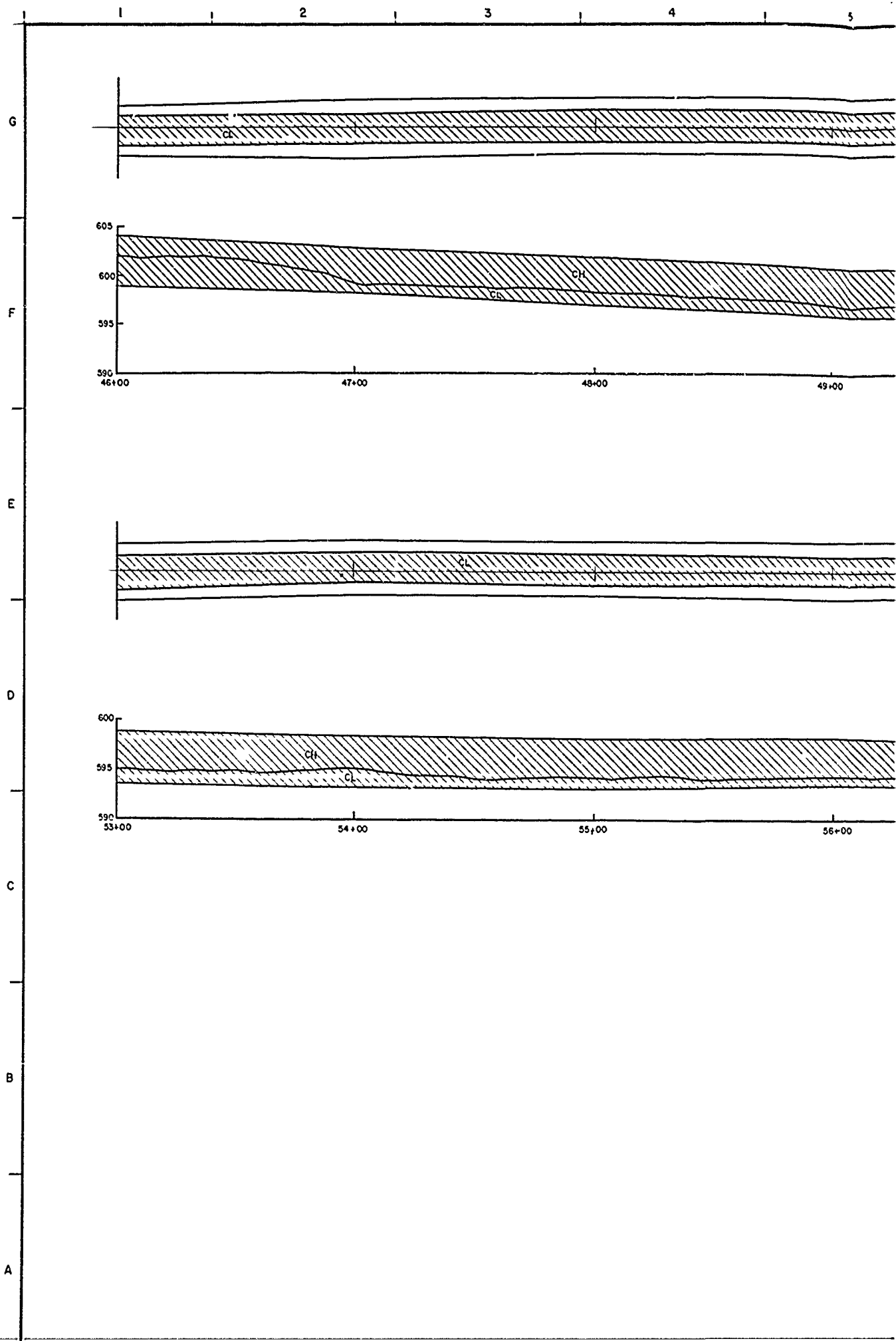


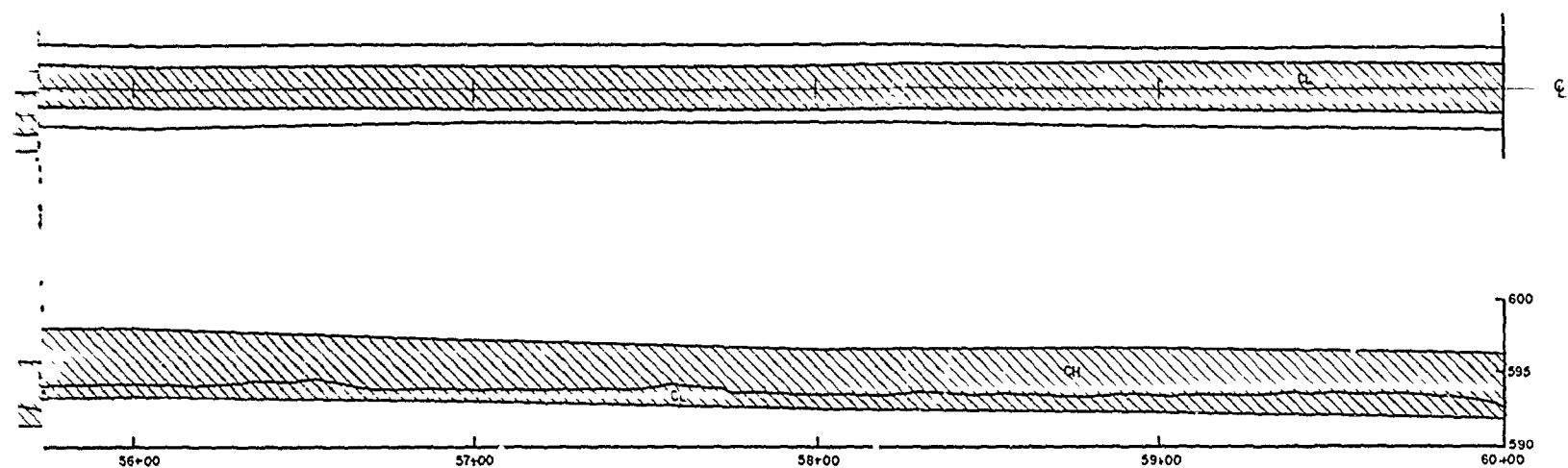
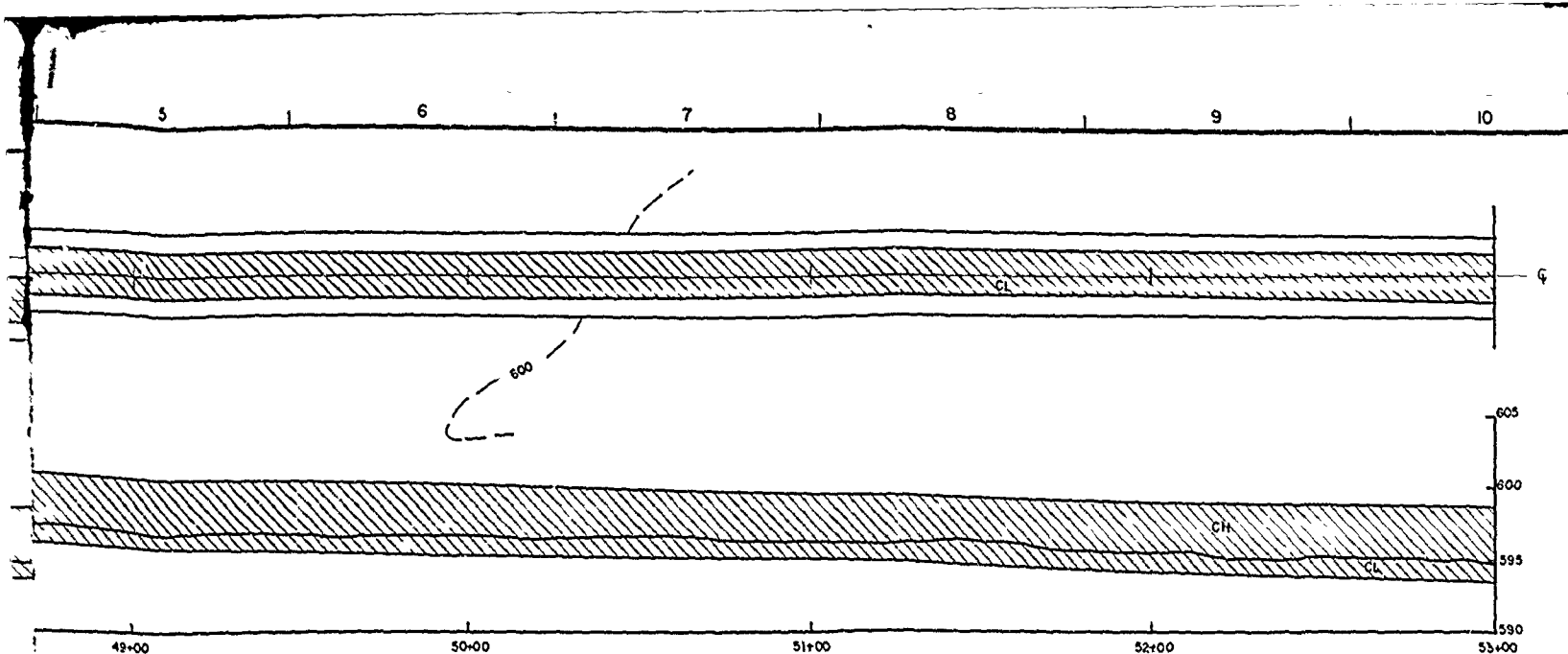
DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT	
REVIEWED BY: R. BEHM		INSPECTION TRENCH	
SUBMITTED BY: ROBERT C. BEHM		AS-BUILT PLAN AND PROFILE	
ENGINEER:		STA. 18+00 TO 32+00	
CONTR. NO.		SEQUENCE NO.	
DRAWING NUMBER		SHEET NO.	
OF		51	



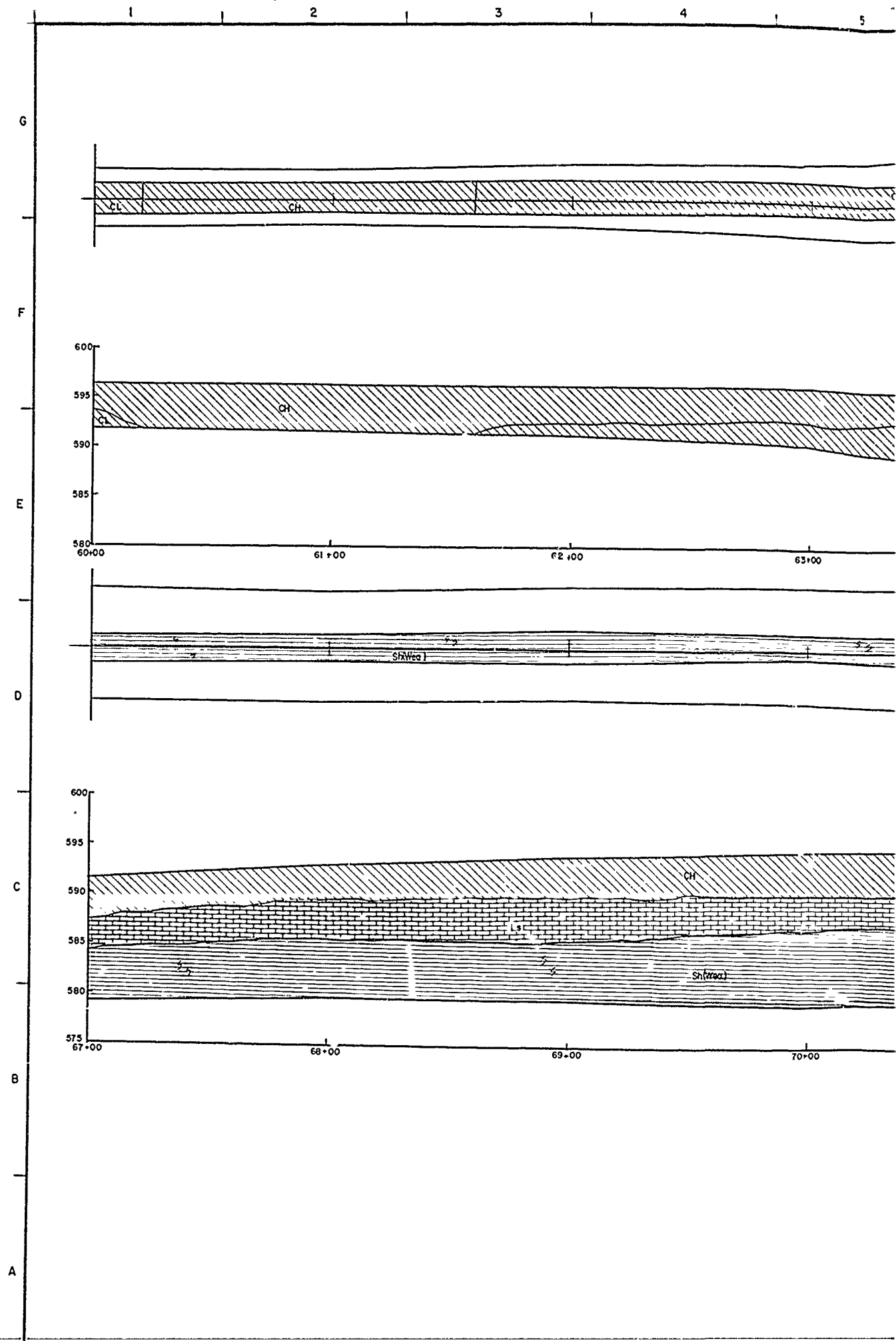


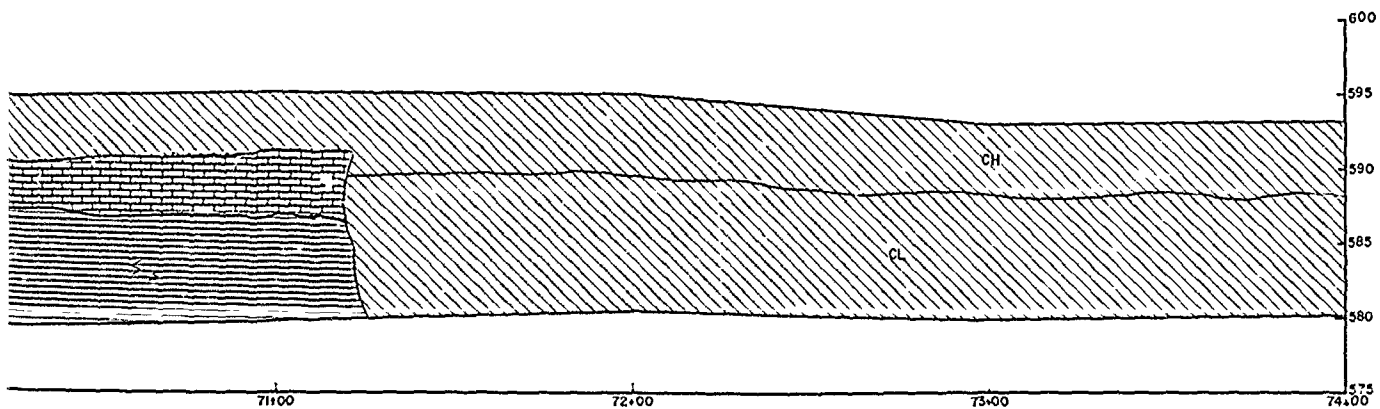
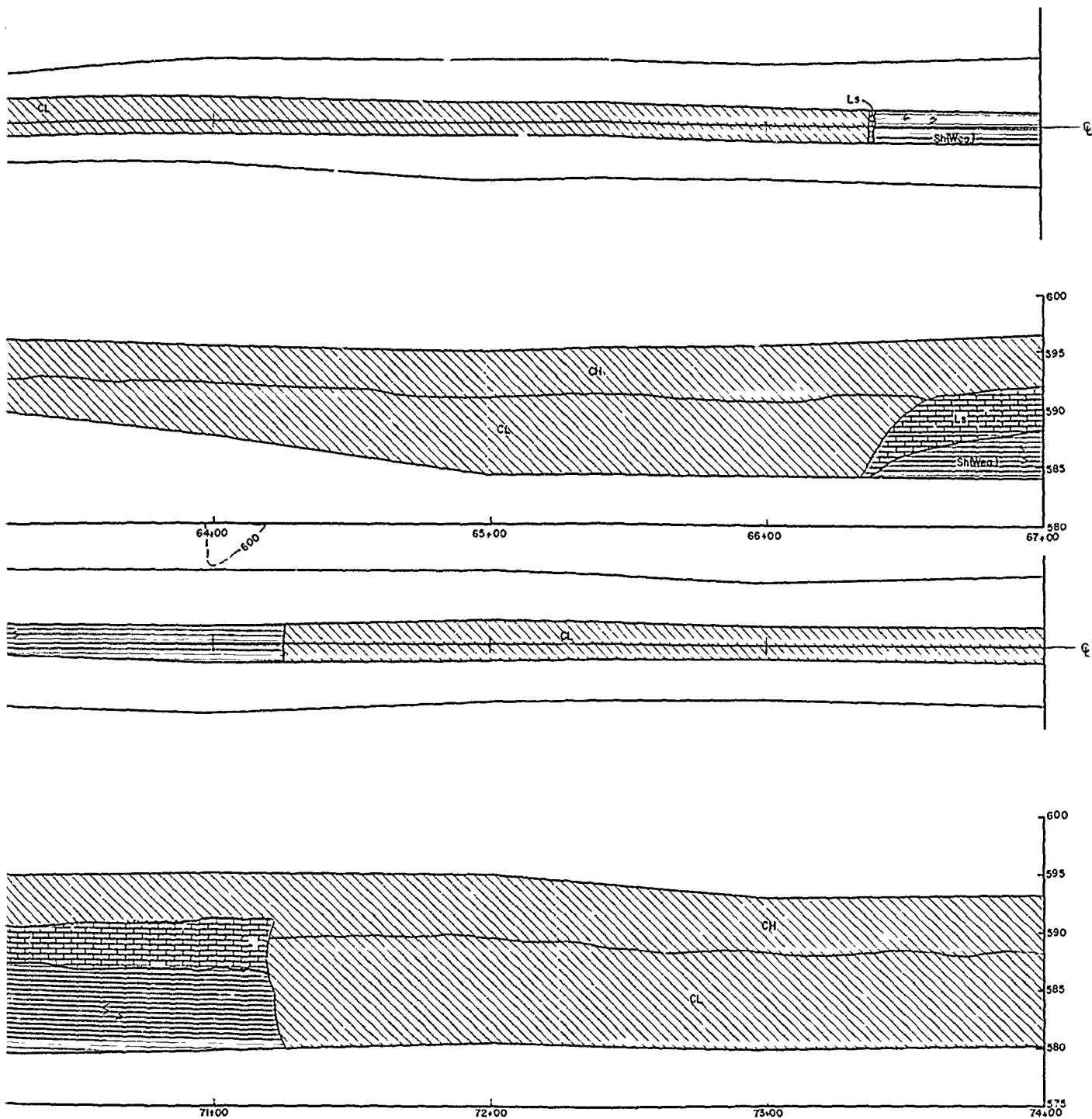
DESIGNED BY: H. BARNETT		DRAWN BY: C. KIRBY		REVIEWED BY: R. BEHM		SUBMITTED BY: ROBERT C. BEHM	
RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS		FOUNDATION REPORT INSPECTION TRENCH AS-BUILT PLAN AND PROFILE STA. 32+00 TO 46+00		SOL. NO.		DATED	
U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS				CONTR. NO.		SECURITY	





DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIBBY		FOUNDATION REPORT INSPECTION TRENCH AS-BUILT PLAN AND PROFILE STA. 46+00 TO 60+00	
REVIEWED BY: R. BEHM			
SUBMITTED BY: ROBERT C. BEHM		SOL. NO.	DATED:
CONTR. NO.		ENGINEER	SEQUENCE NO.

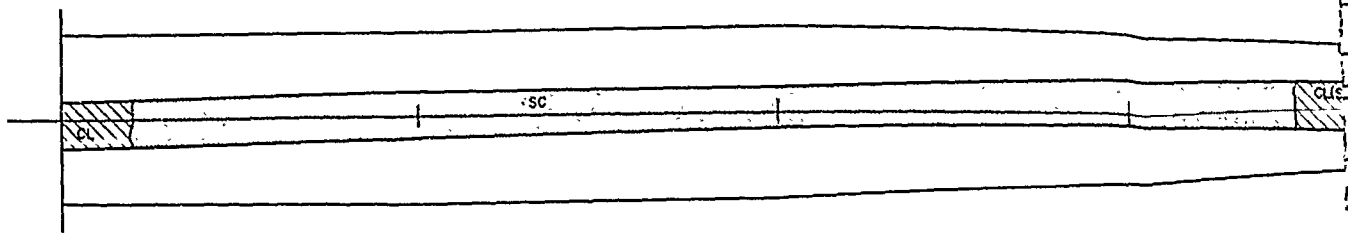




DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT	
REVIEWED BY: R. BEHM		INSPECTION TRENCH	
SUBMITTED BY: ROBERT C. BEHM		AS-BUILT PLAN AND PROFILE	
ENGINEER		STA. 60+00 TO 74+00	
SOL. NO.		DATED:	
CONTR. NO.		SEQUENCE NO.	
DRAWING NUMBER		SHEET NO.	
		OF 54	

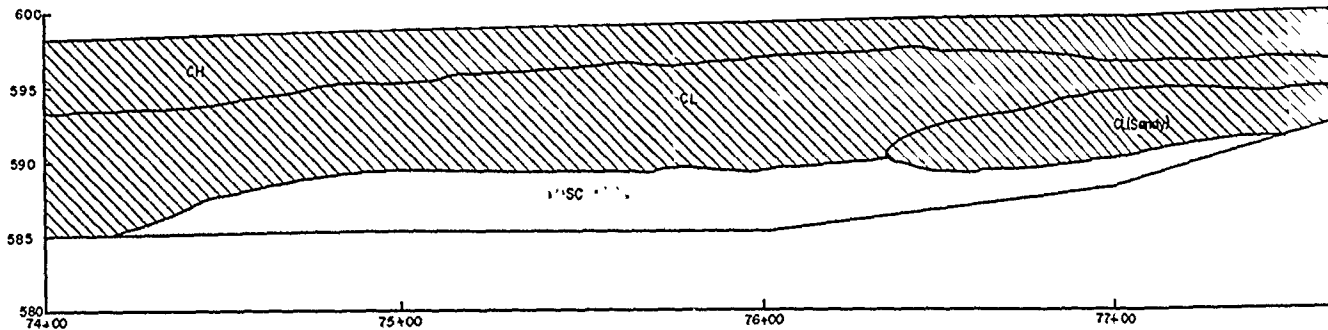
TO ACCOMPANY FOUNDATION REPORT

G

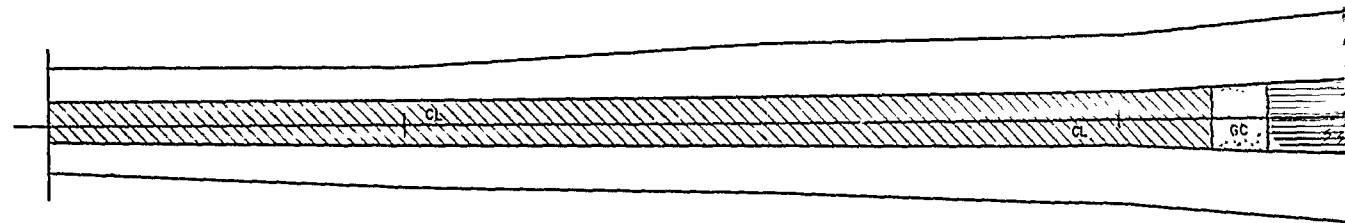


F

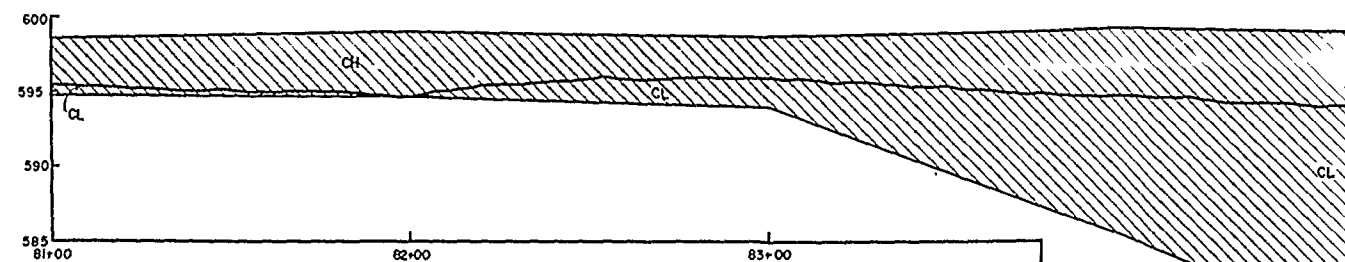
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D

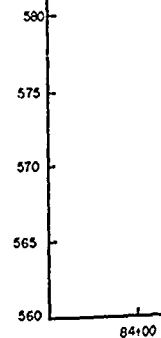


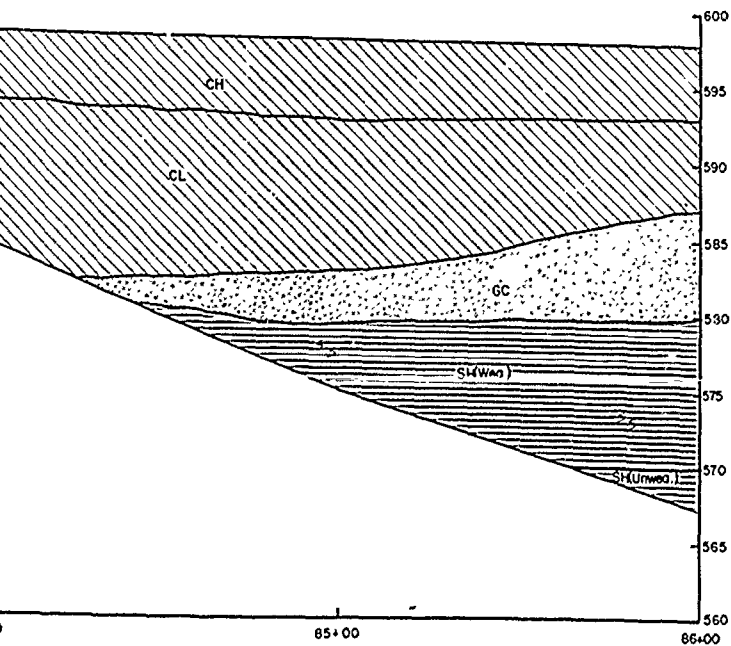
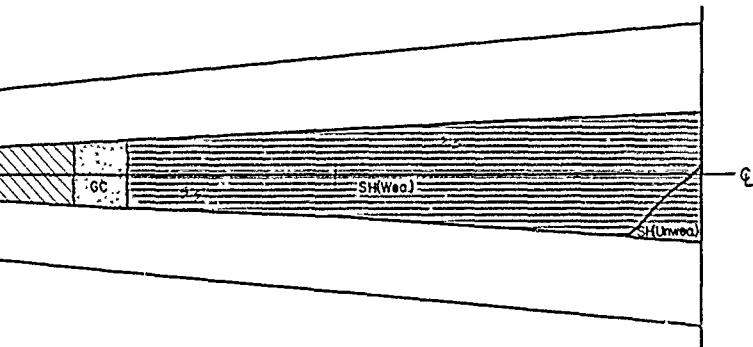
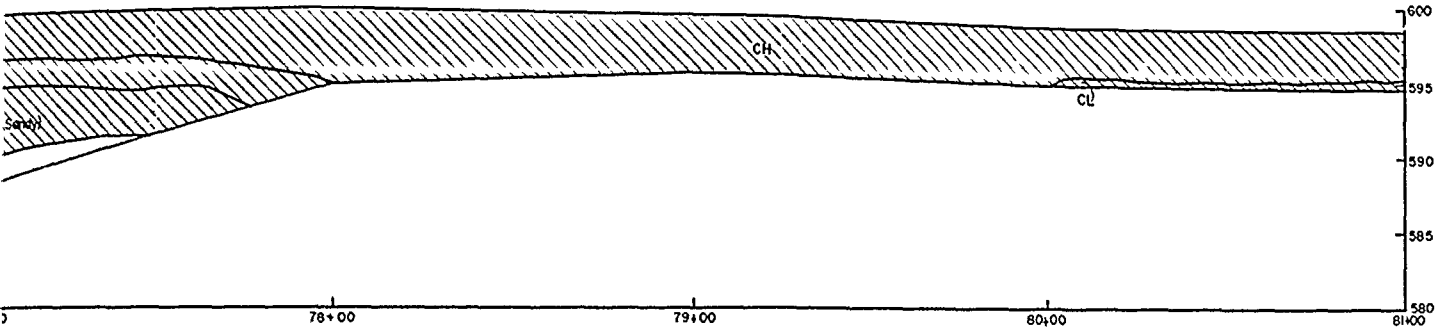
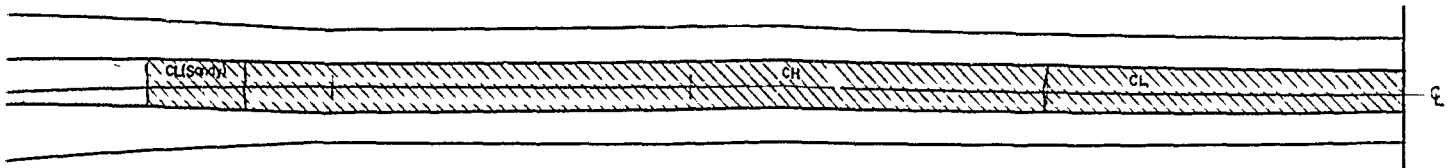
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B

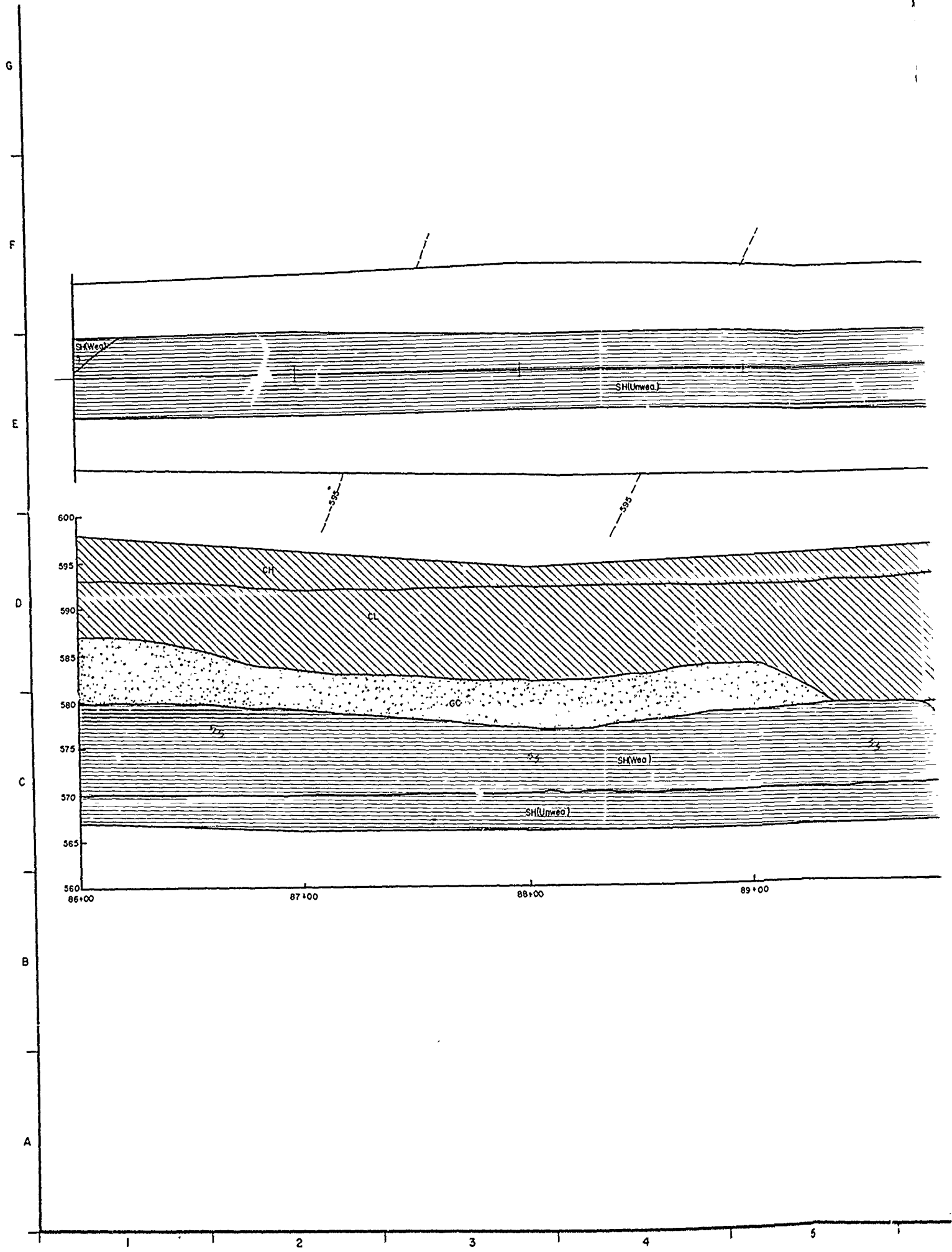
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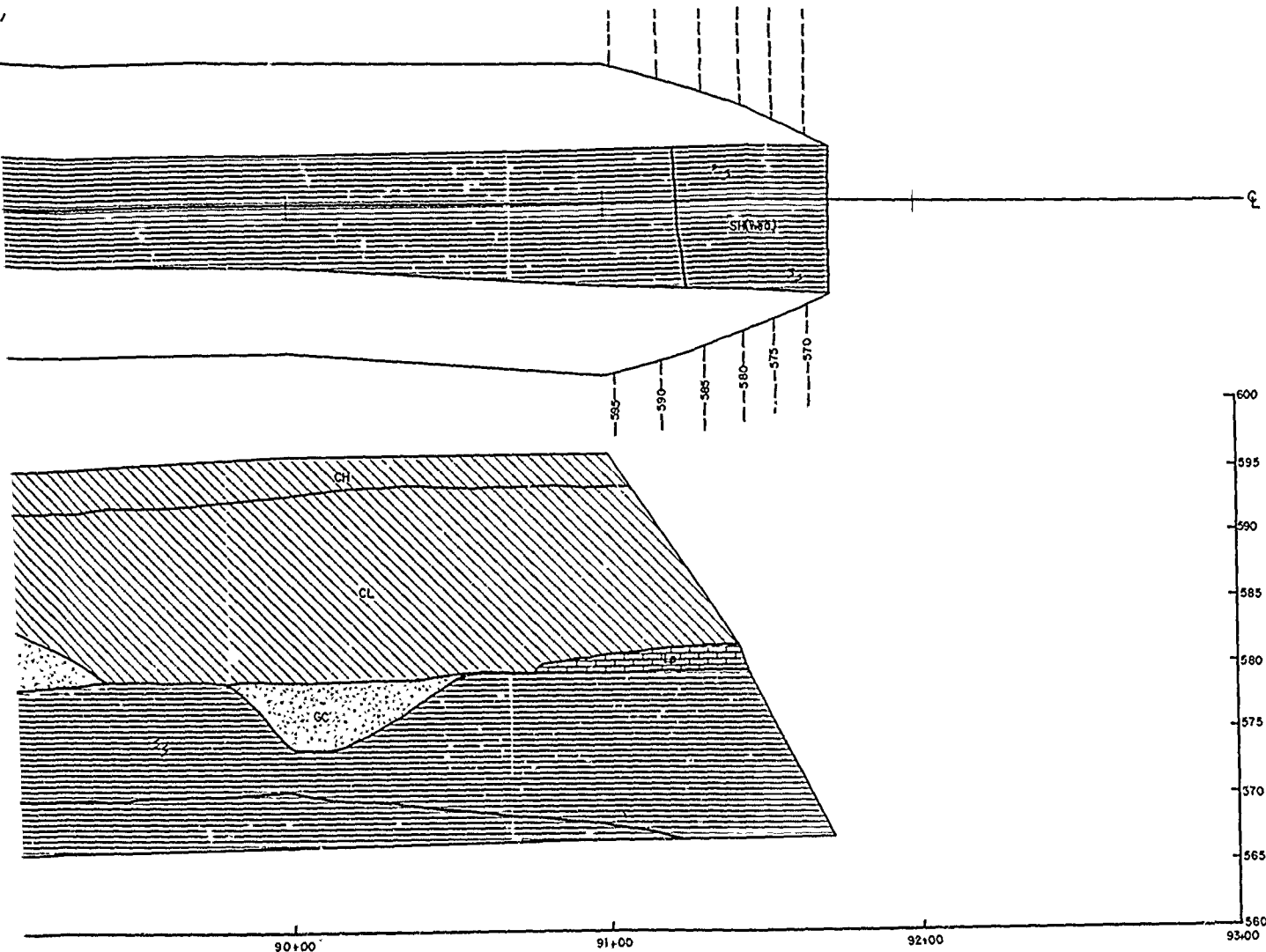


DESIGNED BY H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY C. KIRBY		FOUNDATION REPORT	
REVIEWED BY R. BEHM		INSPECTION TRENCH	
SUBMITTED BY ROBERT C. BEHM		AS-BUILT PLAN AND PROFILE	
ENGINEER		STA 74+00 TO 86+00	
CONTR. NO.		SOL. NO.	
DRAWING NUMBER		DATED	
SHEET NO.		SEQUENCE NO.	
OF		55	

TO ACCOMPANY FOUNDATION REPORT



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DESIGNED BY: H. RABETTI		DRAWN BY: C. KIRBY		REVIEWED BY: R. BEHM		SUBMITTED BY: ROBERT C. BEHM		CONTR. NO.		SHEET NO.		SEQUENCE NO.	
RAY ROBERTS LAKE ELM FORG, TRINITY RIVER, TEXAS		FOUNDATION REPORT INSPECTION TRENCH AS-BUILT PLAN AND PROFILE STA. 86+00 TO 93+00		U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS		DATED:		DRAWING NUMBER		OF		56	

TO ACCOMPANY FOUNDATION REPORT

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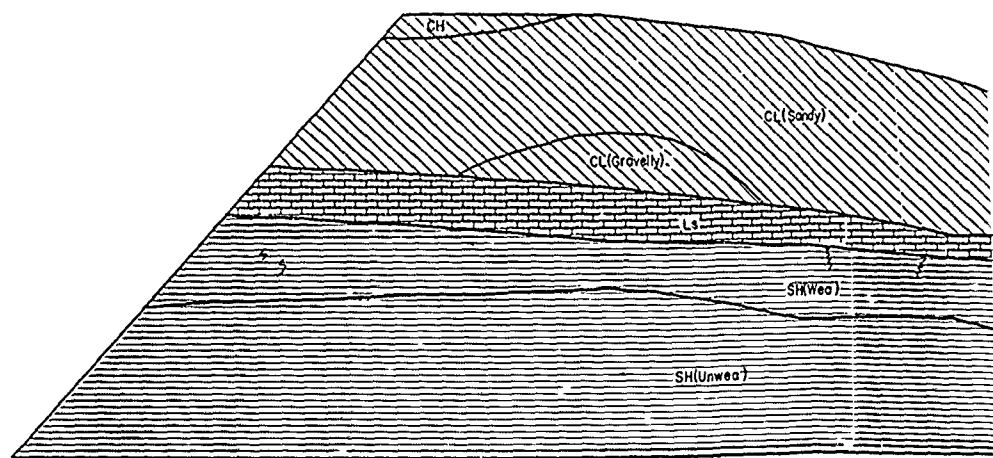
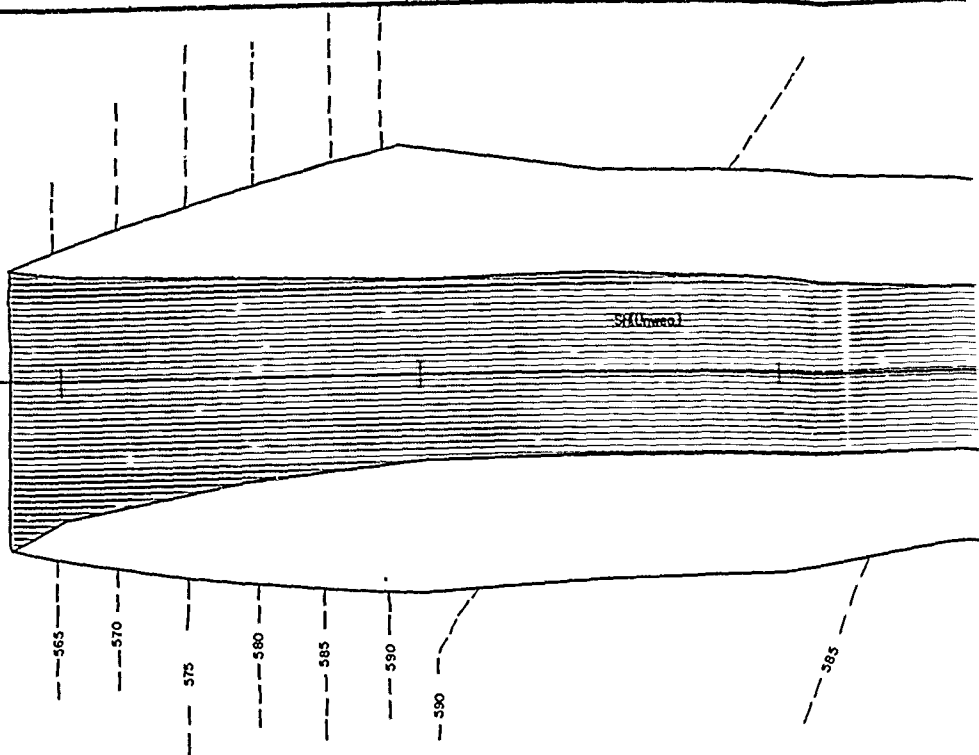
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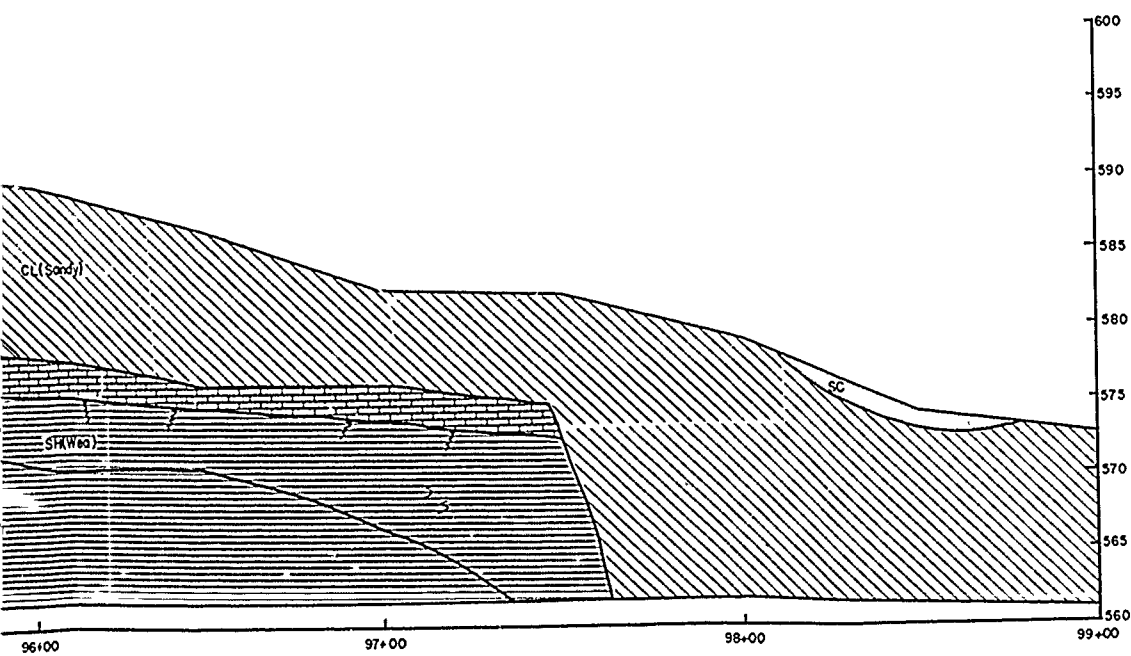
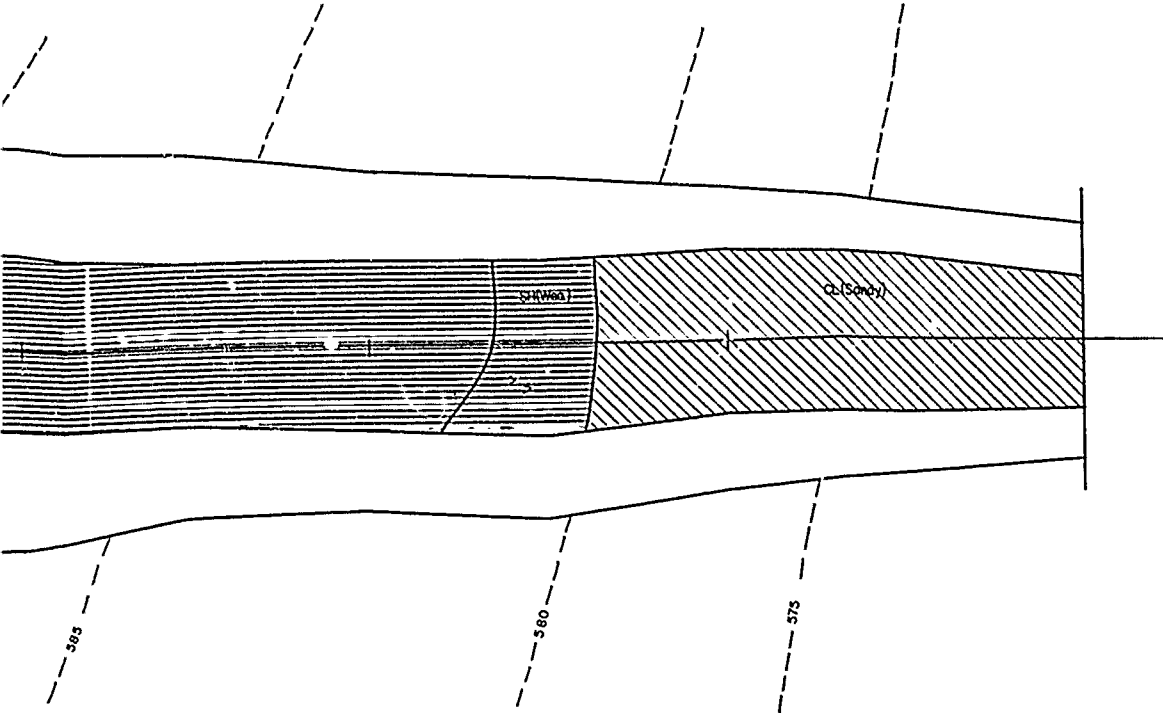
93+00

94+00

95+00

96+00

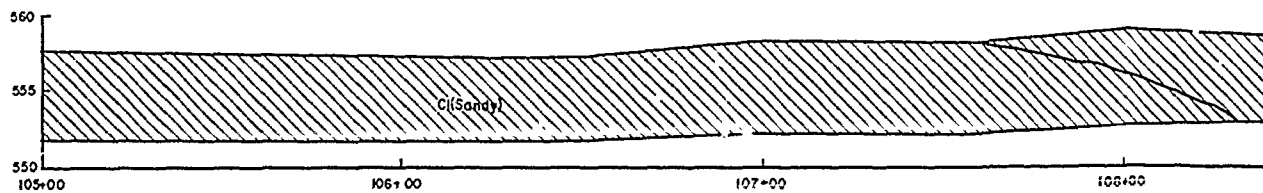
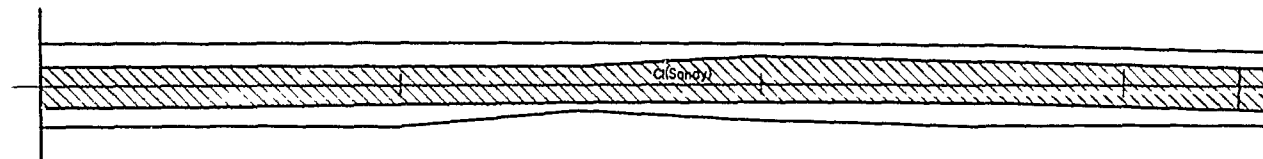
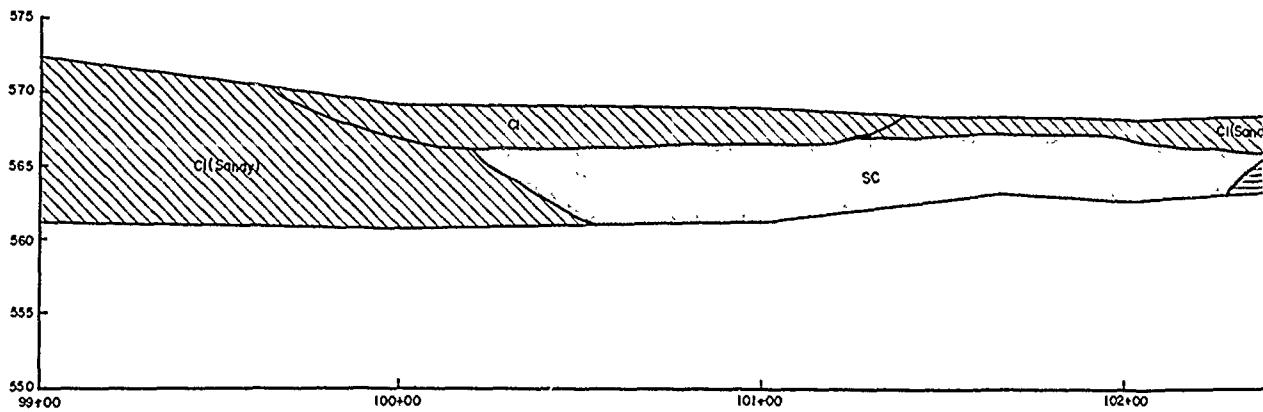
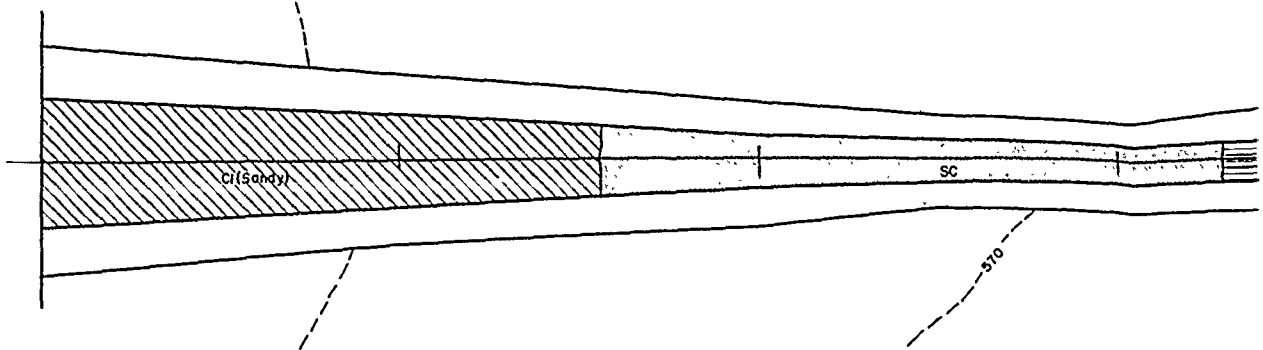


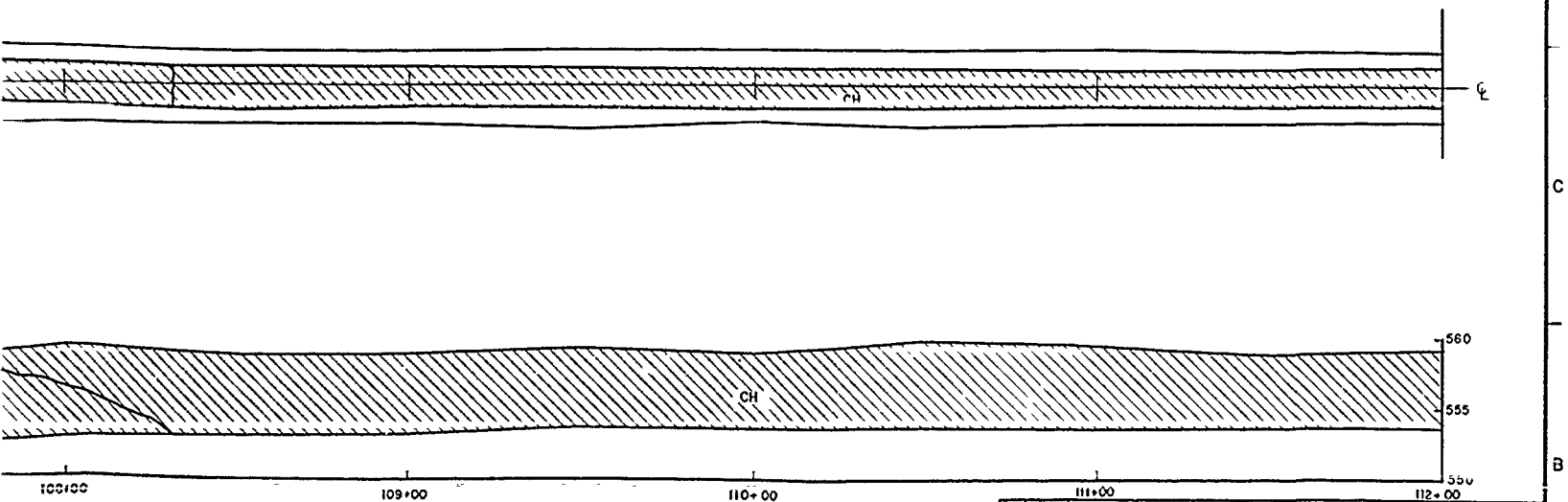
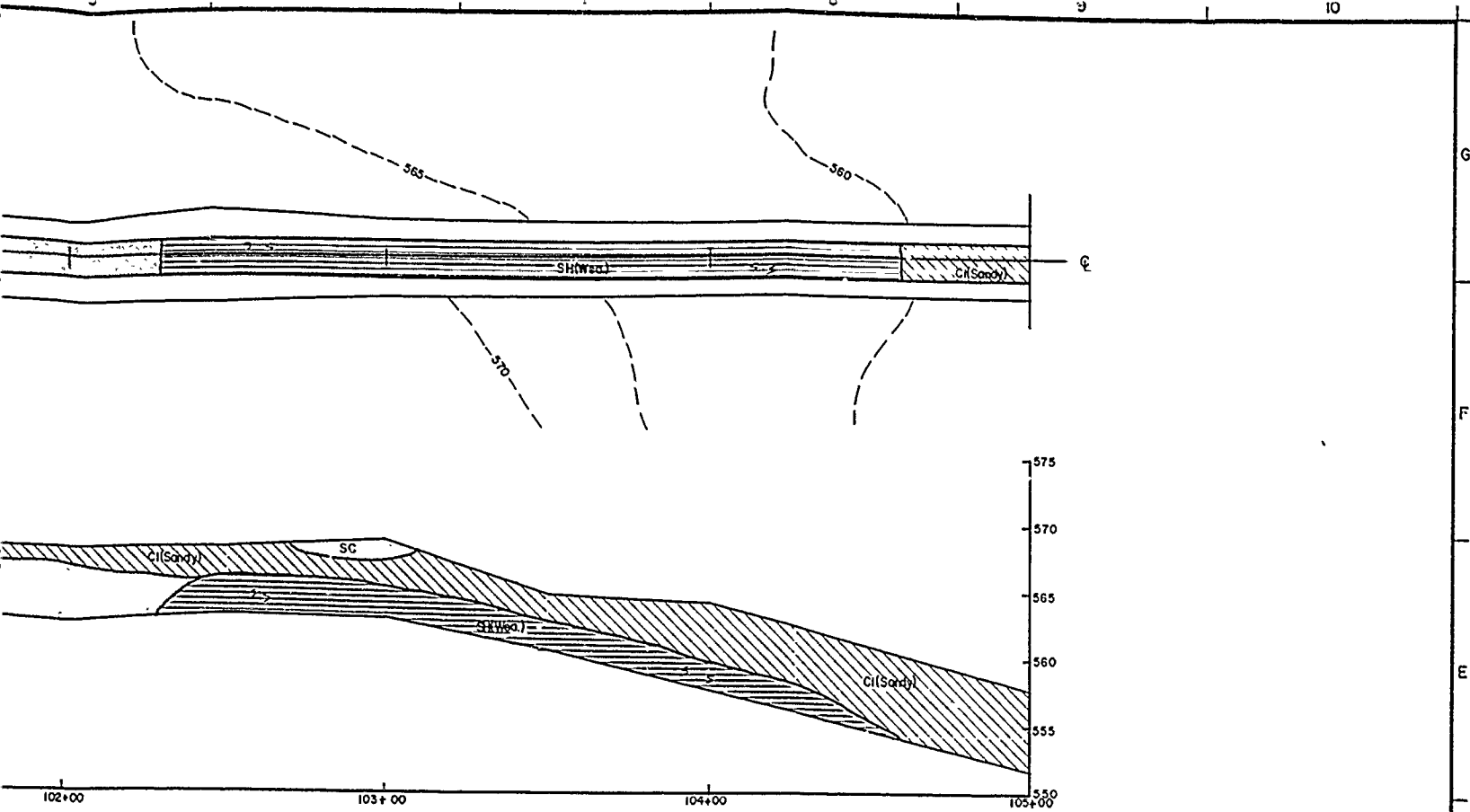


DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT INSPECTION TRENCH	
REVIEWED BY: R. BEHM		AS-BUILT PLAN AND PROFILE STA. 93 00 TO 99 00	
SUBMITTED BY: ROBERT C. BEHM		SOL. NO.	DATE:
ENGINEER:		CONTR. NO.	SEQUENCE NO.
		DRAWING NUMBER	SHEET NO. 57

TO ACCOMPANY FOUNDATION REPORT

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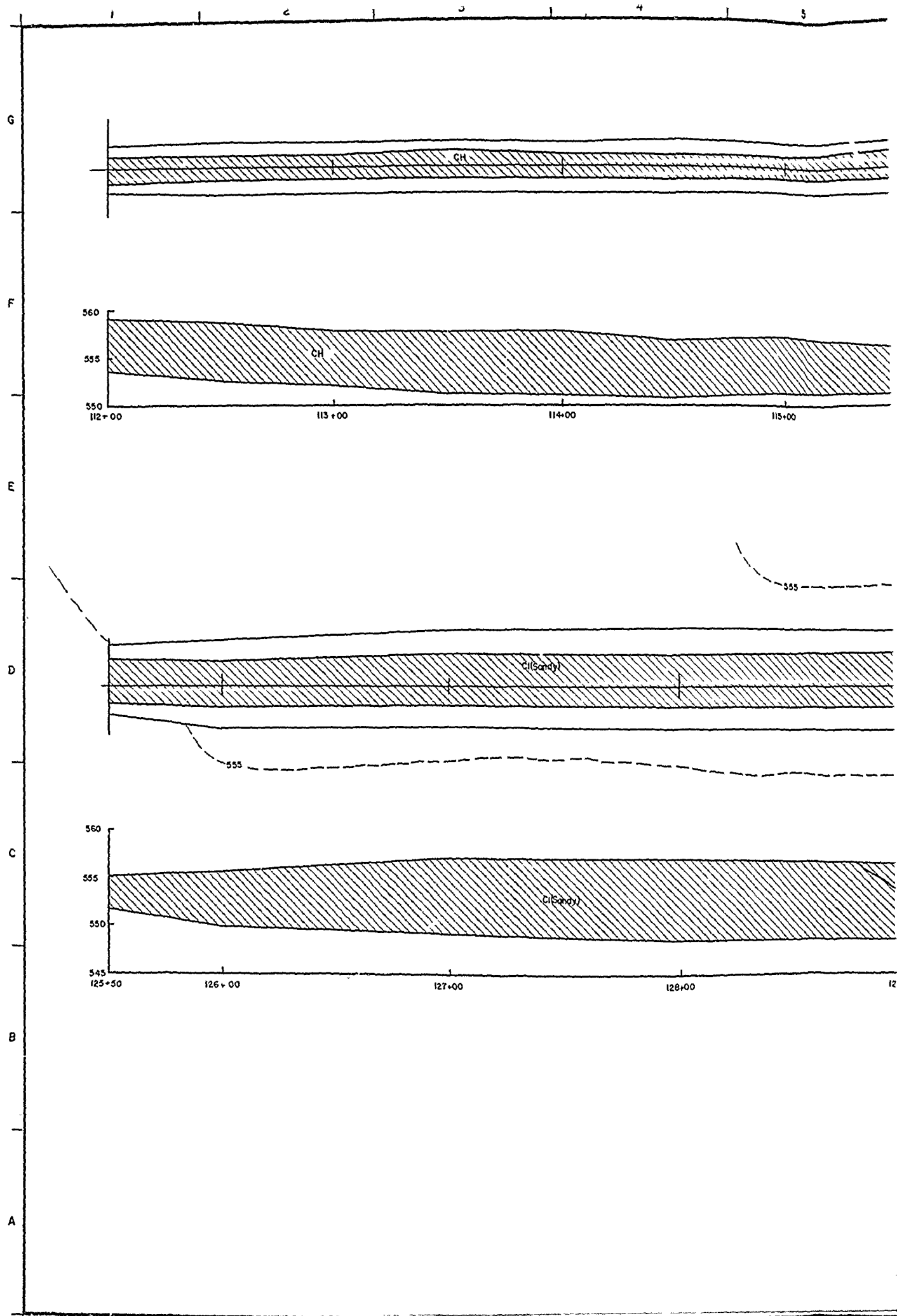


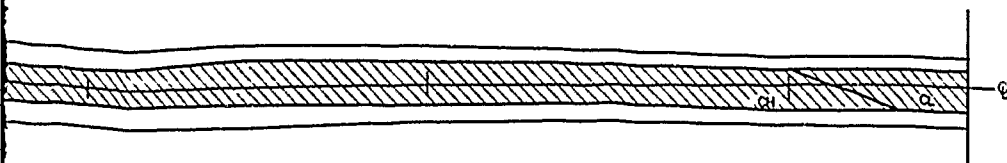


DESIGNED BY: H. BARNETT		DRAWN BY: C. KIRBY		REVIEWED BY: R. BEHM		SUBMITTED BY: ROBERT C. BEHM		SOL. NO.		DATED:		SEQUENCE NO.	
CONTR. NO.		DRAWING NUMBER		SHEET NO.		58							

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
FOUNDATION REPORT
INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA. 99+00 TO 112+00

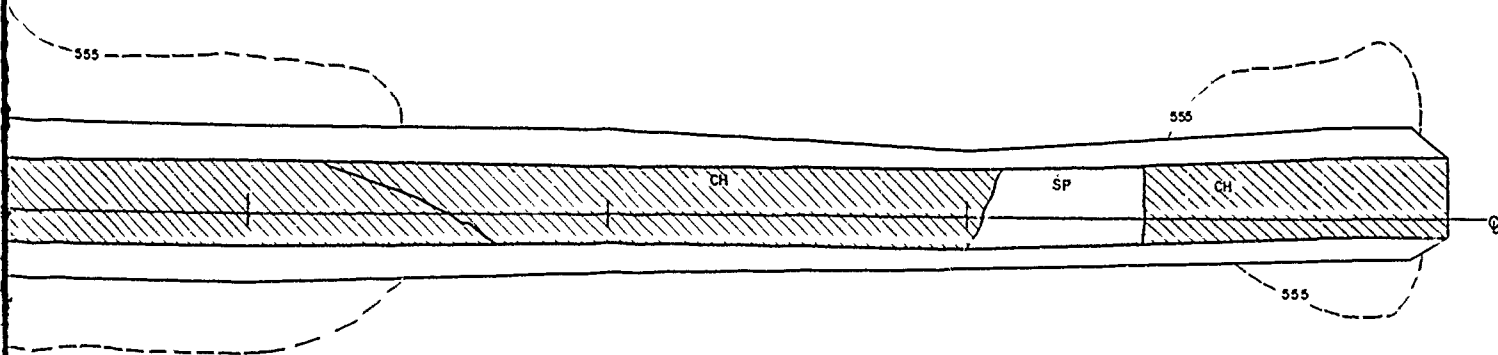
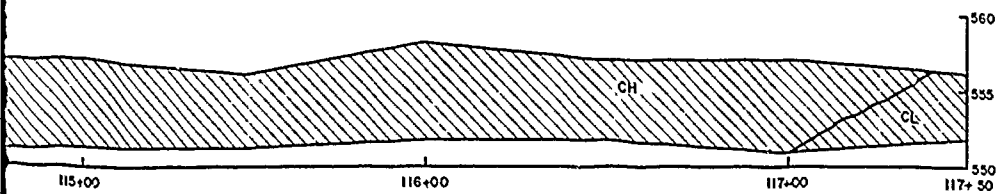
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEX.





NOTE

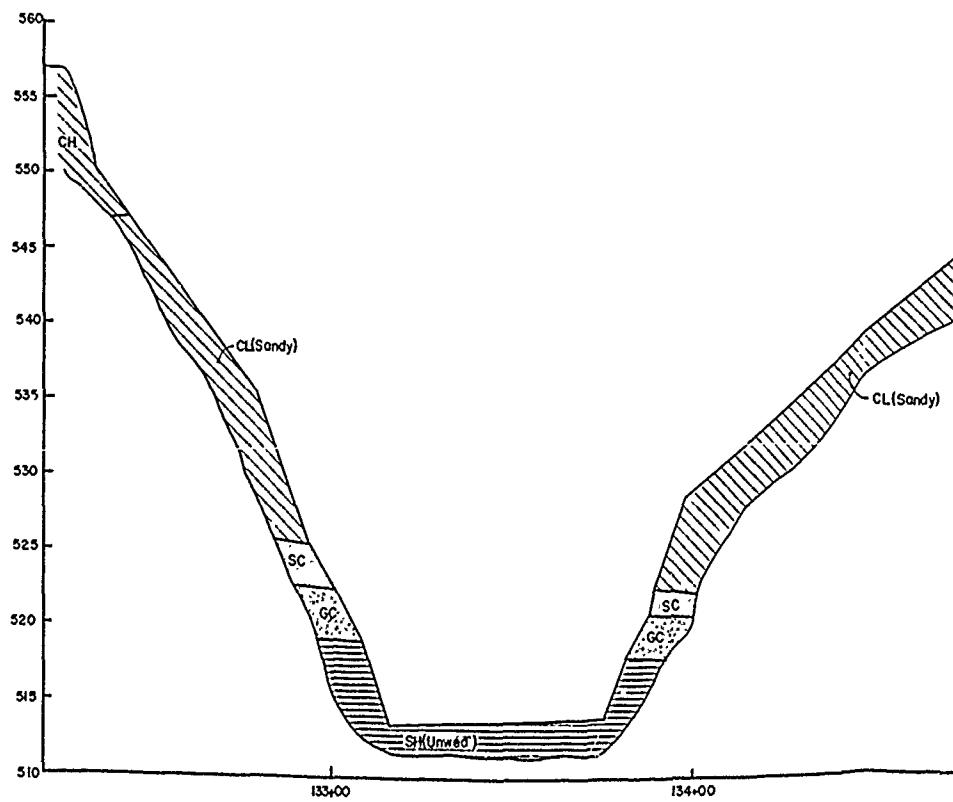
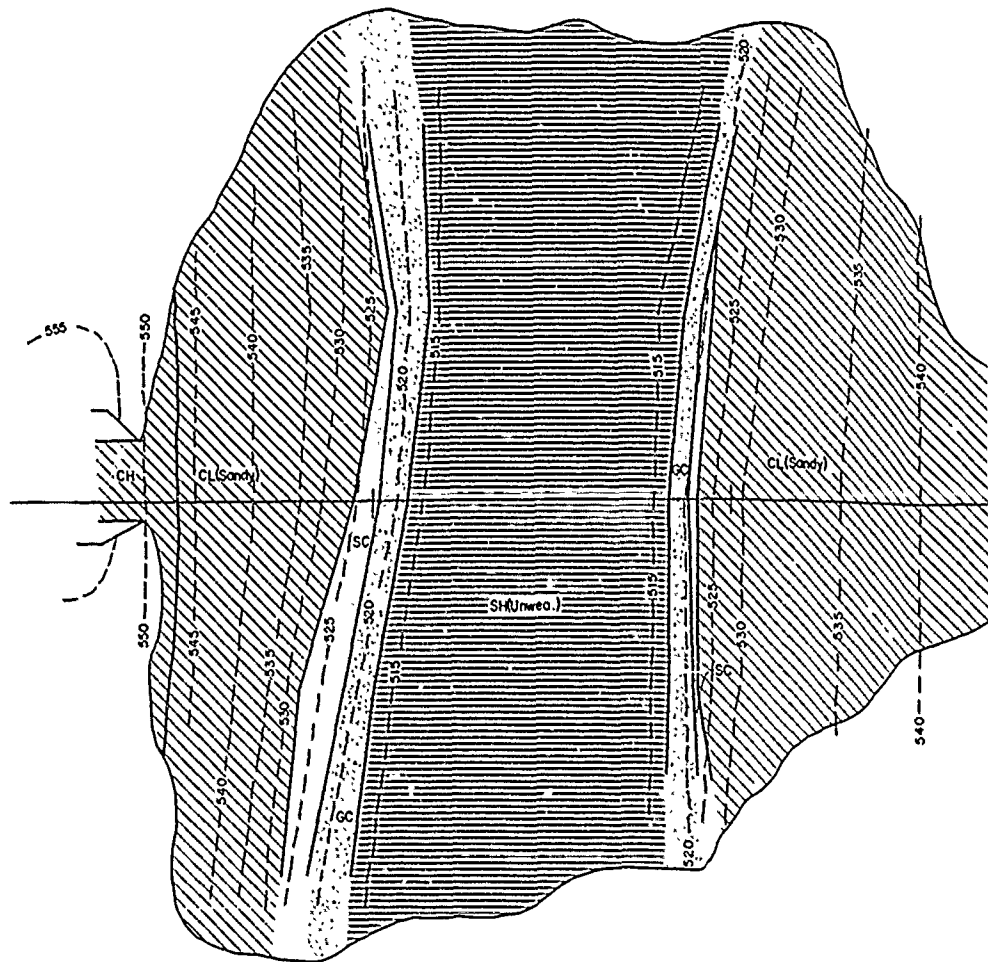
NO INSPECTION TRENCH WAS EXCAVATED BETWEEN STATIONS 117+50 AND 125+50

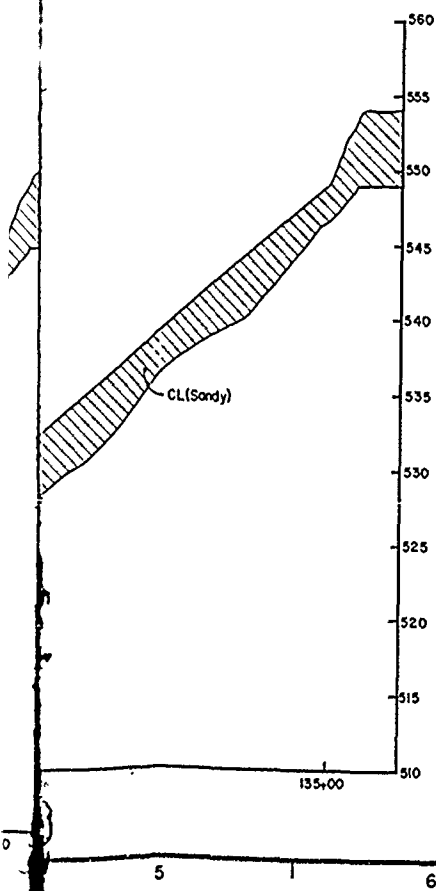
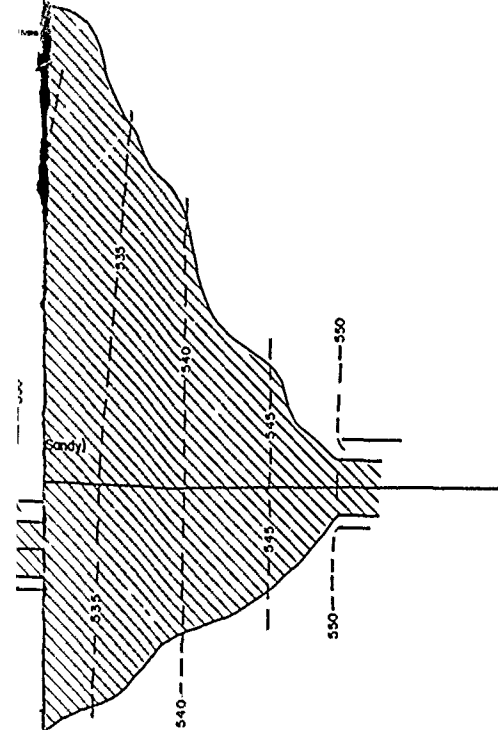


DESIGNED BY: H. BARNETT		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT	
REVIEWED BY: R. BEHM		INSPECTION TRENCH AS-BUILT PLAN AND PROFILE STA. 112+00 TO 117+50/125+50 TO 132+35	
SUBMITTED BY: ROBERT C. BEHM		SCALE NO.	DATED:
ENGINEER:		CONTR. NO.	SEQUENCE NO.
		DRAWING NUMBER	SHEET NO. 59

TO ACCOMPANY FOUNDATION REPORT

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DESIGNED BY: H. BARNEY, I.		RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C. KIRBY		FOUNDATION REPORT INSPECTION TRENCH	
REVIEWED BY: R. BEHM		STA. 132+35 TO 135+20	
SUBMITTED BY: ROBERT C. BEHM		SOL. NO.	DATED:
ENGINEER:		CONTR. NO.	SHEET NO.
		DRAWING NUMBER	OF

TO ACCOMPANY FOUNDATION REPORT

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ELEVATION IN FEET

OVERBURDEN



CLAY, v sandv, dry, lt gray mottled red-brn

SAND, siltv, variably clayey, tan, fine.
Scattered gravels, irregularly weakly cemented.

SAND, clayey, dense, rust. With gravel and cobble-sized sandstone fragments.

PRIMARY



SHALE, (Pawpaw) soft, moist, gray w/ rust stains along joint planes, mod-sl cemented.



LIMESTONE, (Main Street) hard, sl weathered, non-jointed.



MARL, (Grayson) soft-mod hard, moist, weathered, calc. massive, tan and lt gray, scatt stained joints.



WEATHERED SANDSTONE, (Woodbine) Non-cemented sand and weakly cemented sandstone, oxide stained. lt gray and rust.



CLAY, (Woodbine) sandv, v stiff, dry, lt gray mottled rust, massive, contains plant frags.



SAND, (Woodbine) fine, clayey, silty, rust.



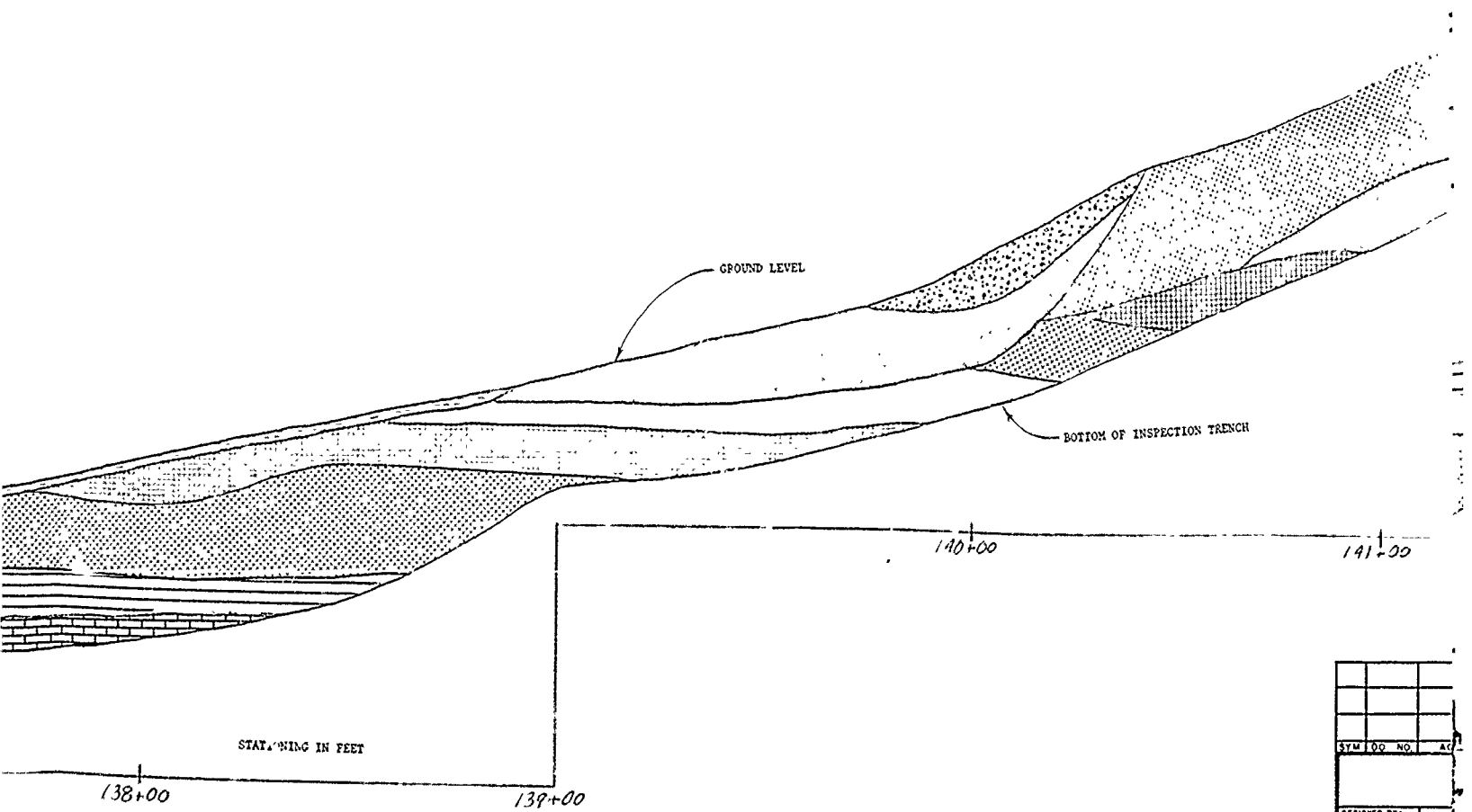
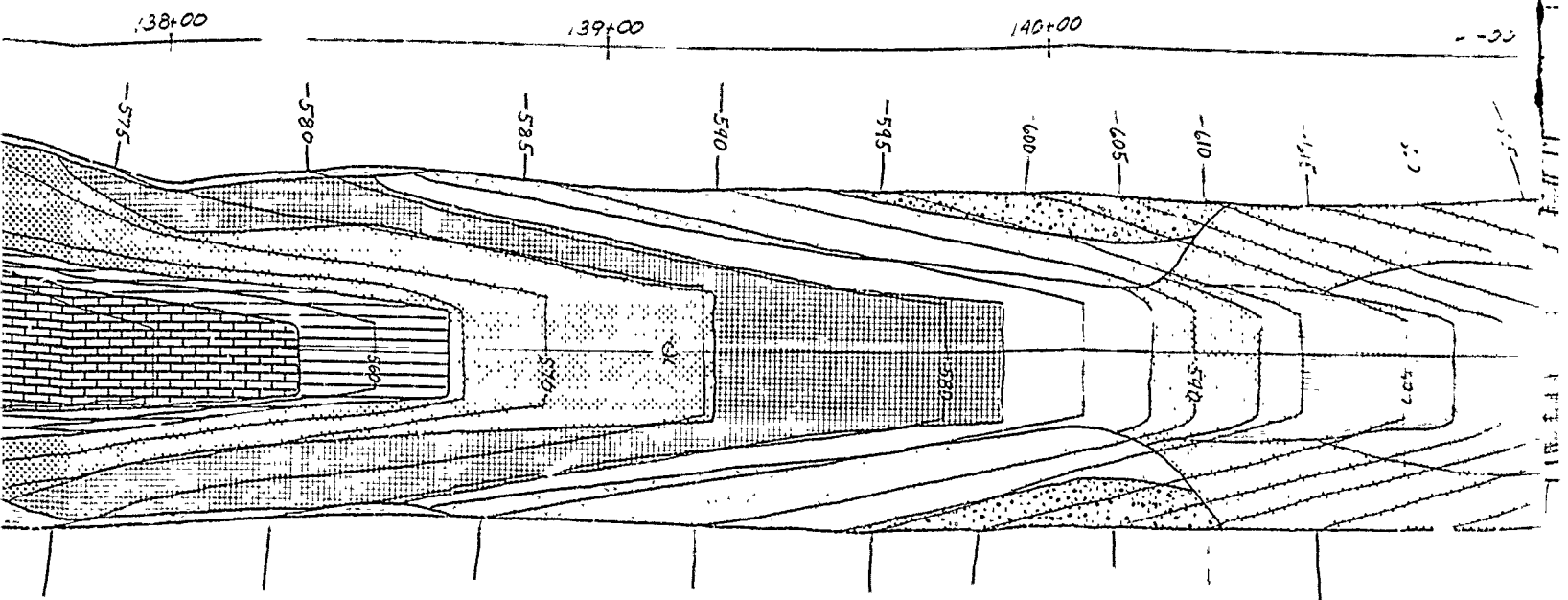
SAND, (Woodbine) loose, fine, clean, tan.

136+00

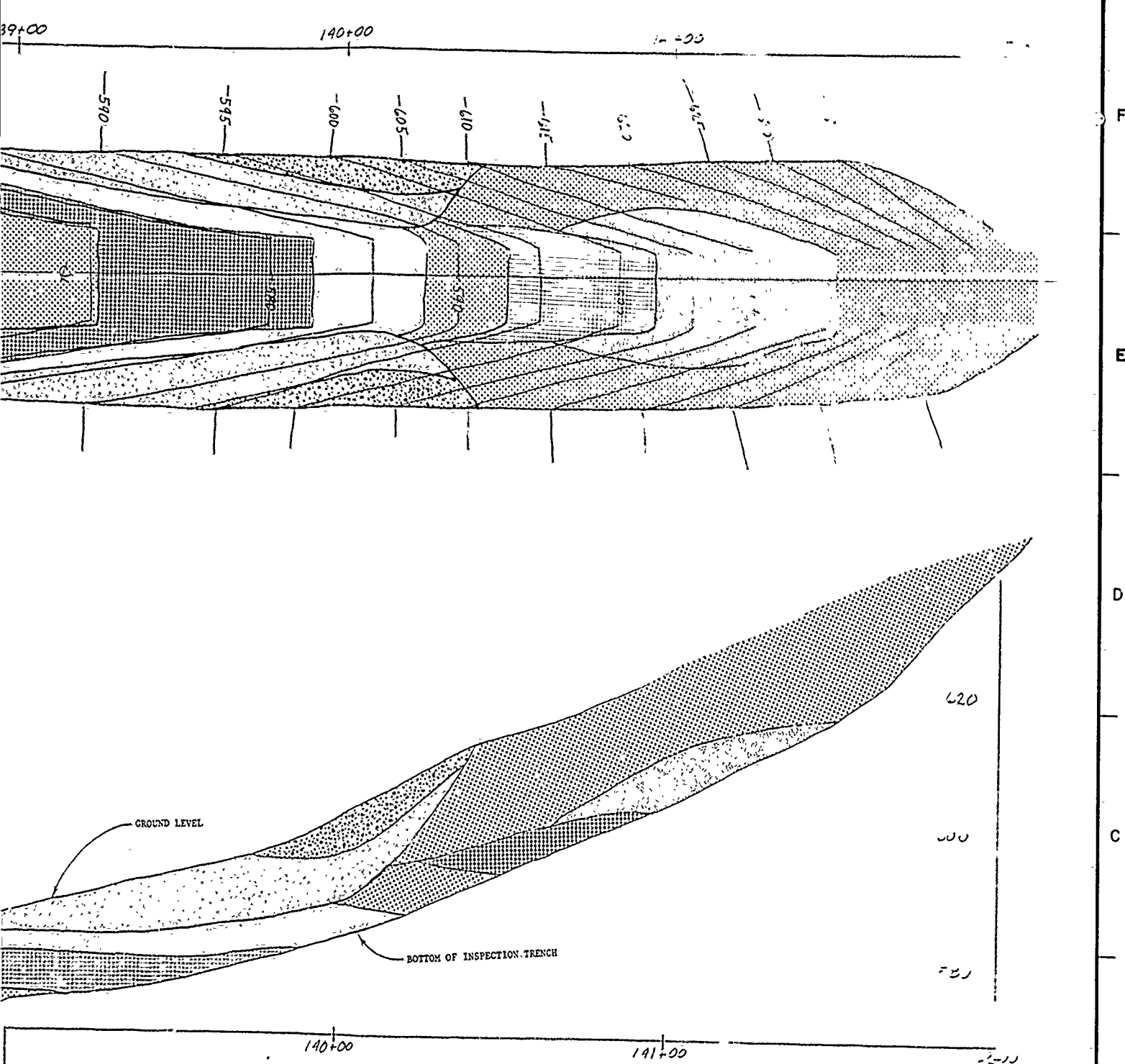
137+00

136+00

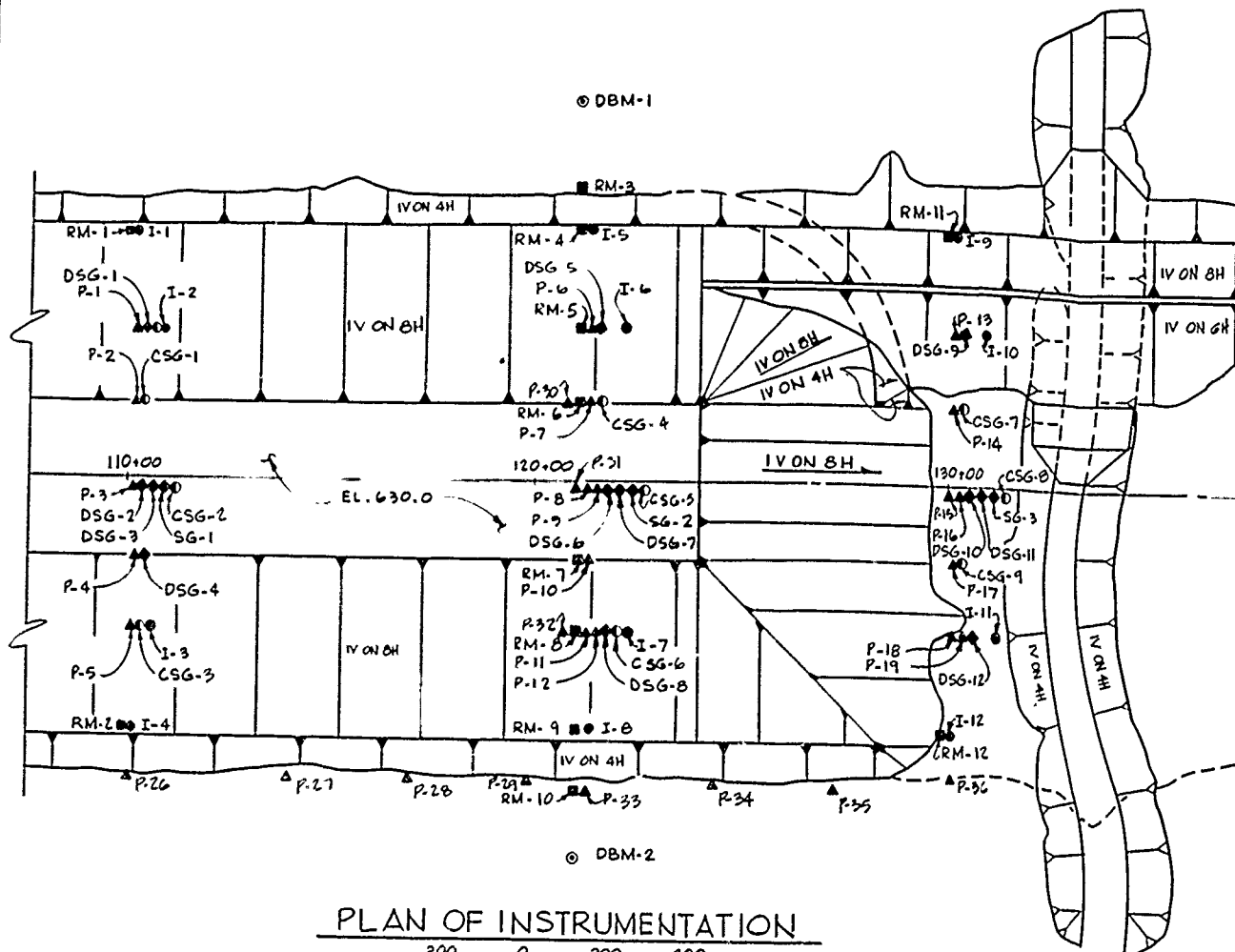
137+00



DESIGNED BY:	R. HAGEN
DRAWN BY:	R. HAGEN
REVIEWED BY:	R. HAGEN



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PLAN OF INSTRUMENTATION

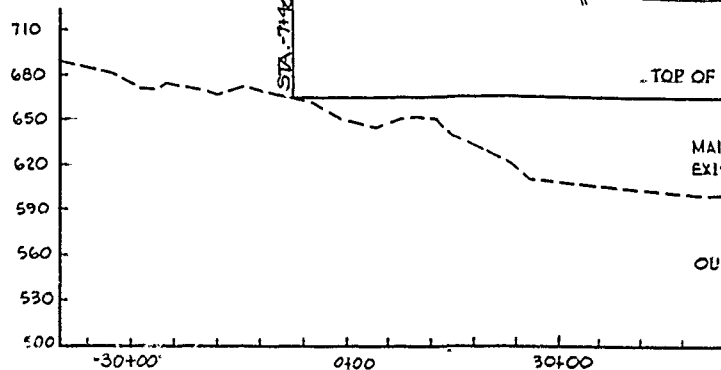
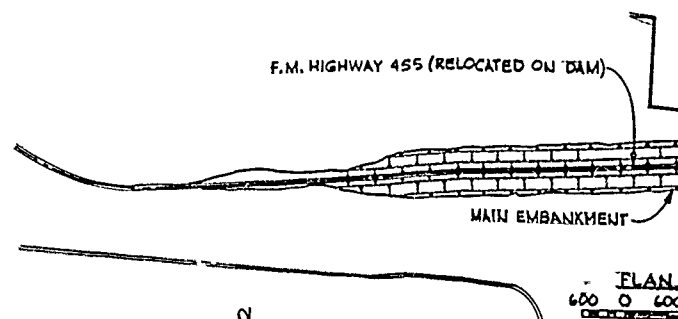
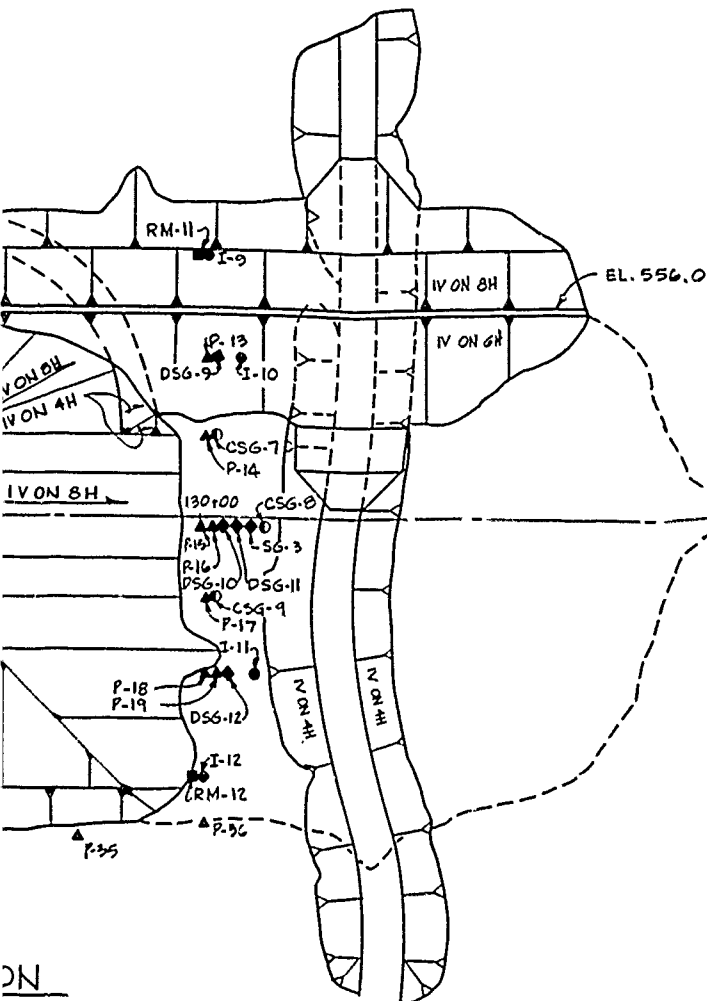
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 SCALE IN FEET

REFERENCE MARKS				
LINE	NO.	STATION	OFFSET	INSTALLATION SCHEDULE
A	RM-1	109+90.2	580.6 U/S	3
	RM-2	109+90.1	580.3 O/S	3
	RM-3	120+89.4	579.6 U/S	1
	RM-4	120+90.3	579.1 U/S	3
	RM-5	120+90.7	350.8 U/S	3
B	RM-6		U/S	3
	RM-7		O/S	3
	RM-8	120+90.3	351.1 O/S	3
	RM-9	120+77.6	580.2 O/S	3
	RM-10	120+78.3	589.8 O/S	1
C	RM-11		U/S	3
	RM-12		O/S	3

POROUS PLASTIC TIP PIEZOMETERS						
LINE	NO.	STATION	OFFSET	FILTER LOCATION	APPROX. FILTER EL. FT., MSL	INSTALLATION SCHEDULE
A	P-1	110+15	349' U/S	WK CI	524-529	1
	P-2	110+10	179' U/S	WK CI	529-534	1
	P-3	110+10	24' O/S	WK CI	524-529	1
	P-4	110+18	181' O/S	WK CI	525-530	1
	P-5	110+10	350' O/S	WK CI	526-531	1
B	P-6	121+10	350' U/S	WK CI	538-543	1
	P-7	121+11	180' U/S	WK CI	538-543	1
	P-8	121+01	24' O/S	WK CI	522-527	1
	P-9	121+10	24' O/S	SH	490-495	1
	P-10	121+10	180' O/S	WK CI	530-535	1
	P-11	121+20	350' O/S	WK CI	536-541	1
	P-12	121+10	350' O/S	SH	499-504	1
C	P-13	129+99	351' U/S	WK CI	533-538	2
	P-14	130+11	112' U/S	WK CI	527-532	2
	P-15	130+00	24' O/S	WK CI	529-534	2
	P-16	130+10	24' O/S	SH	501-506	2
	P-17A	130+01	116' O/S	WK CI	526-531	2
	P-18	129+99	349' O/S	WK CI	524-529	2
	P-19	130+10	349' O/S	SH	499-504	2
	P-20	28+47	297' O/S	SD & GR	583-588	4
	P-21	32+46	297' O/S	SD & GR	581-586	4
	P-22	54+02	323' O/S	SD & GR	565-570	4
	P-23	63+00	327' O/S	SD & GR	565-570	4
SEEPAGE PIEZOMETERS	P-24	73+25	328' O/S	SD & GR	576-581	4
	P-25	85+07	320' O/S	SD & GR	576-581	4
	P-26	110+05	666' O/S	SD & GR	523-528	4
	P-27	114+00	678' O/S	SD & GR	521-526	4
	P-28	116+99	678' O/S	SD & GR	520-525	4
	P-29	119+99	678' O/S	SD & GR	518-523	4
	P-30	121+40	182' U/S	SD & GR	520-525	4
	P-31	120+40	26' O/S	SD & GR	513-518	4
	P-32	121+00	345' O/S	SD & GR	524-529	4
	P-33	121+09	677' O/S	SD & GR	518-523	4
	P-34	124+30	675' O/S	SD & GR	520-525	4
	P-35	127+29	672' O/S	SD & GR	521-526	4
	P-36	130+10	675' O/S	SD & GR	522-527	4

SETTLEMENT				
LINE	NO.	STATION	OFF.	
A	DSG-1	110+30	350	
	DSG-2	110+20	24	
	DSG-3	110+30	24	
	SG-1	110+50	25	
	DSG-4	110+20	350	
B	DSG-5	121+20	350	
	DSG-6	121+20	24	
	DSG-7	121+40	24	
	SG-2	121+31	25	
	DSG-8	121+30	350	
C	DSG-9	130+09	351	
	DSG-10	130+19	24	
	DSG-11	130+29	24	
	SG-3	130+40	24	
	DSG-12	130+19	350	

POROUS PLASTIC TIP P				
LINE	NO.	STATION	OFFSET	L
SEEPAGE PIEZOMETERS	P-140	130+07	120' U/S	5
	P-131	137+62	104' U/S	5
	P-135	137+59	361' O/S	5
	P-137	137+58	621' O/S	5
	P-140	139+06	107' O/S	5
	P-141	139+04	565' O/S	5
	P-142	140+53	326' O/S	5
	P-143	141+41	92' O/S	5
	P-143	141+39	95' O/S	5
	P-143	141+39	95' O/S	5



TERMINATION	APPROX. FILTER EL. FT., MSL	INSTALLATION SCHEDULE
CI	534-539	1
CI	529-534	1
CI	524-529	1
CI	525-530	1
CI	526-531	1
CI	530-543	1
CI	530-543	1
CI	522-527	1
CI	490-495	1
CI	530-535	1
CI	536-541	1
H	499-504	1
CI	533-538	2
CI	527-532	2
CI	524-529	2
CI	501-506	2
CI	526-531	2
CI	524-529	2
CI	499-504	2
GR	583-588	4
GR	581-586	4
GR	585-590	4
GR	585-590	4
GR	576-581	4
GR	576-581	4
GR	573-578	4
GR	571-576	4
GR	570-575	4
GR	518-523	4
GR	520-525	4
GR	513-518	4
GR	524-529	4
GR	518-523	4
GR	520-525	4
GR	521-526	4
GR	522-527	4

SETTLEMENT GAGES					
LINE	NO.	STATION	OFFSET	APPROX. PLATE EL.	INSTALLATION SCHEDULE
A	DS4-1	110+30	350' U/S	536	1
	DS4-2	110+20	24' D/S	503	1
	DS4-3	110+30	24' D/S	526	1
	DS4-1	110+50	25' D/S	560	1
	DS4-4	110+20	550' D/S	529	1
B	DS4-5	121+20	350' U/S	540	1
	DS4-6	121+20	24' D/S	526	1
	DS4-7	121+40	24' D/S	508	1
	DS4-2	121+31	25' D/S	557	1
	DS4-8	121+30	350' D/S	540	1
C	DS4-9	130+07	351' U/S	536	2
	DS4-0	130+19	24' D/S	532	2
	DS4-11	130+27	24' D/S	516	2
	DS4-3	130+40	24' U/S	558	2
	DS4-0	130+19	350' D/S	526	2

POROUS PLASTIC TIP PIEZOMETERS (CONT.)					
LINE	NO.	STATION	OFFSET	FILTER LOCATION	INSTALLATION SCHEDULE
A	P-140	130+07	120' U/S	50' C1	1
	P-37	137+62	104' U/S	50	1
	P-38	137+59	36' D/S	50	1
	P-37	137+58	62' D/S	50	1
	P-40	139+06	107' D/S	50	1
B	P-41	139+04	565' D/S	50	1
	P-42	140+53	326' D/S	50	1
	P-43A	141+41	72' D/S	50	1
	P-43B	141+39	95' D/S	50	1

INCLINOMETERS					
LINE	NO.	STATION	OFFSET	APPROX. BOTTOM	INSTALLATION SCHEDULE
A	I-1	110+10	580' U/S	490	1
	I-2	110+30	350' U/S	490	1
	I-3	110+30	350' D/S	480	1
	I-4	110+20	580' D/S	488	1
B	I-5	121+10	580' U/S	500	1
	I-6	121+30	350' U/S	498	1
	I-7	121+50	350' D/S	494	1
	I-8	121+10	580' D/S	494	1
C	I-9	130+10	580' U/S	490	2
	I-10	130+30	350' U/S	496	2
	I-11	130+40	350' D/S	494	2
	I-12	130+10	580' D/S	494	2

COLLAPSIBLE SETTLEMENT GAGES					
LINE	NO.	STATION	OFFSET	APPROX. BOTTOM	INSTALLATION SCHEDULE
A	CS4-1	110+20	180' U/S	490	1
	CS4-2	110+50	24' U/S	480	1
	CS4-3	110+40	350' D/S	480	1
B	CS4-4	121+20	180' U/S	496	1
	CS4-5	121+60	24' D/S	486	1
	CS4-6	121+40	350' D/S	494	1
C	CS4-7	130+20	180' U/S	496	2
	CS4-8	130+60	24' D/S	486	2
	CS4-9	130+20	180' D/S	494	2

INSTALLATION SCHEDULE

1. AFTER STRIPPING STA
2. AFTER STRIPPING STA
3. AS EMBANKMENT REA ELEVATION AT THIS ST OFFSET (BEFORE TOP)
4. AFTER ENTIRE EMB TOPPED-OUT

LEGEND

- ▲ PIEZOMETER
- ◆ SETTLEMENT GAGE
- COLLAPSIBLE SETTLEMENT GAGE
- INCLINOMETER
- REFERENCE MARK
- BENCHMARK

DEEP BENCHMARK

LINE	NO.	STATION	OFFSET	APPR. BOTTOM
B	BM-1	21+00	380' D/S	500
	BM-2	21+00	380' D/S	490
C	BM-3	143+00	50' D/S	650

SEE EMBANKMENT
INSTRUMENTATION PLAN
THIS SEQUENCE

F.M. HIGHWAY 455 (RELOCATED ON DAM)

OUTLET WORKS
APPROACH CHANNEL

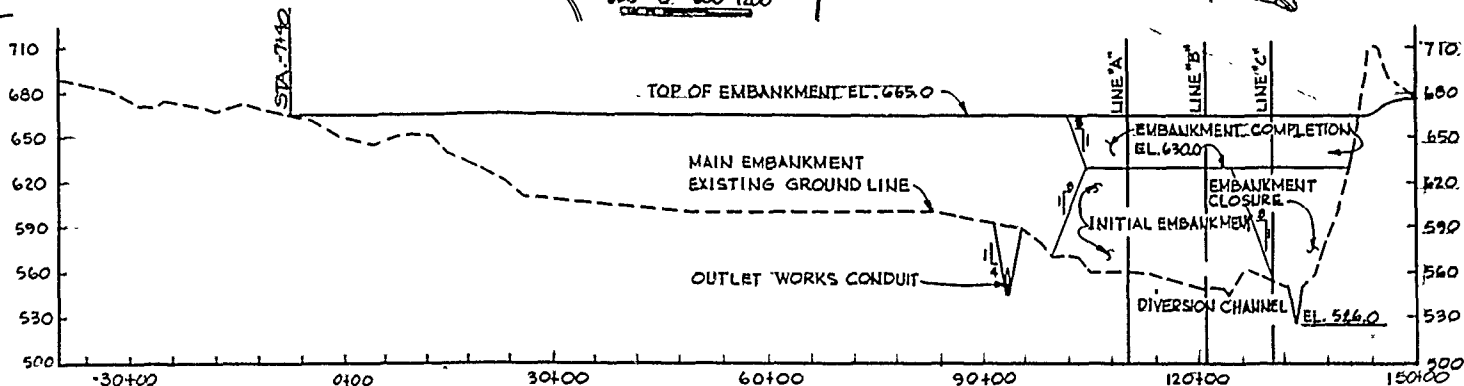
OUTLET WORKS INTAKE

EMBANKMENT CLOSURE

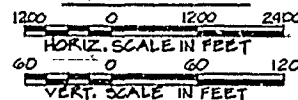
MAIN EMBANKMENT

OUTLET WORKS
STILLING BASIN

PLAN
600 0. 600 1200



PROFILE



INCLINOMETERS

LINE	NO.	STATION	OFFSET	APPROX. BOTTOM	INSTALLATION SCHEDULE
A	I-1	110+10	580' U/S	490	1
	I-2	110+30	350' U/S	490	1
	I-3	110+30	350' D/S	480	1
	I-4	110+20	580' D/S	488	1
B	I-5	121+10	580' U/S	500	1
	I-6	121+30	350' U/S	498	1
	I-7	121+30	350' D/S	494	1
	I-8	121+10	580' D/S	494	1
C	I-9	130+10	580' U/S	490	2
	I-10	130+30	350' U/S	496	2
	I-11	130+40	350' D/S	494	2
	I-12	130+10	580' D/S	494	2

INSTALLATION SCHEDULE LEGEND

1. AFTER STRIPPING STAGE I
2. AFTER STRIPPING STAGE III C
3. AS EMBANKMENT REACHES FINISHED ELEVATION AT THIS STATION AND OFFSET (BEFORE TOPSOIL).
4. AFTER ENTIRE EMBANKMENT IS TOPPED-OUT

LEGEND

- ▲ PIEZOMETER
- ◆ SETTLEMENT GAGE
- ◆ COLLAPSIBLE SETTLEMENT GAGE
- ⊙ INCLINOMETER
- REFERENCE MARK
- ⊙ BENCHMARK

COLLAPSIBLE SETTLEMENT GAGES

LINE	NO.	STATION	OFFSET	APPROX. BOTTOM	INSTALLATION SCHEDULE
A	CS4-1	110+20	180' U/S	490	1
	CS4-2	110+50	24' U/S	480	1
	CS4-3	110+40	350' D/S	480	1
B	CS4-4	121+20	180' U/S	496	1
	CS4-5	121+60	24' D/S	486	1
	CS4-6	121+40	350' D/S	494	1
C	CS4-7	130+20	180' U/S	496	2
	CS4-8	130+60	24' D/S	486	2
	CS4-9	130+20	180' D/S	494	2

DEEP BENCHMARK

LINE	NO.	STATION	OFFSET	APPROX. BOTTOM EL.	INSTALLATION SCHEDULE
B	DM-1	121+00	880' D/S	500	1
B	DM-2	121+00	880' D/S	490	1
DM-3	143+00	50' D/S	650	1	

NOTES:

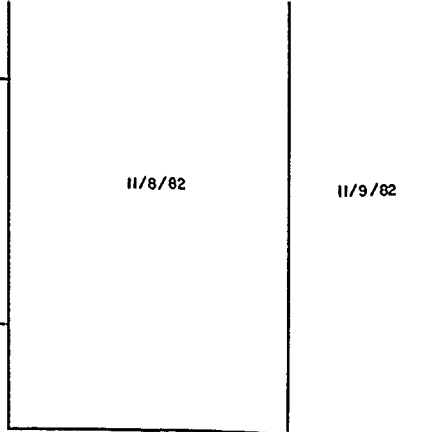
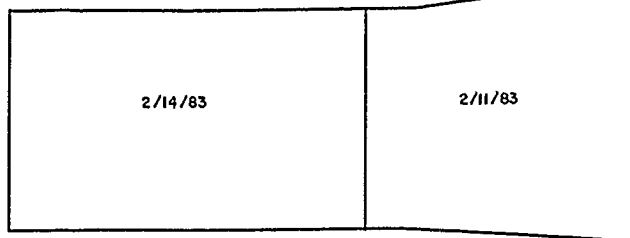
1. FOR SECTION THRU LINE A, SEE SEQ. NO. 44
2. FOR SECTION THRU LINE B, SEE SEQ. NO. 45
3. FOR SECTION THRU LINE C, SEE SEQ. NO. 46
4. ALL INSTRUMENT ELEVATIONS ARE APPROXIMATE. ACTUAL ELEVATIONS WILL BE DETERMINED AT TIME OF INSTALLATION.
5. ALL INSTRUMENTATION WILL HAVE PROTECTIVE FENCE, EXCEPT THOSE ALONG THE DOWNSTREAM CREST. FOR PROTECTIVE FENCE DETAILS, SEE SEQ. 41

RECORD DRAWING-WORK AS-BUILT

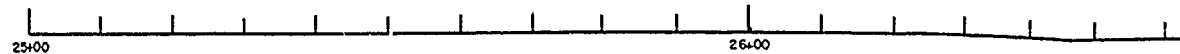
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U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS EMBANKMENT PLAN OF INSTRUMENTATION			
DESIGNED BY A. BRANCH			
DRAWN BY J. FIESLER			
REVIEWED BY A. BRANCH			
SUBMITTED BY H. KARBS	INVITATION NO. DACH63-82-B-0026	DATE: MAR. 1982	
ENGINEER	CONTRACT NO. DACH63-82-C-0093	SHEET NO.	SEQUENCE NO.
	DRAWING NUMBER		

CONTRACT NO. DACH63-82-C-0093

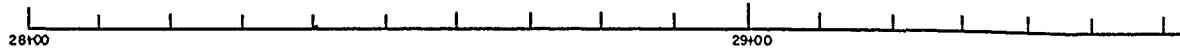
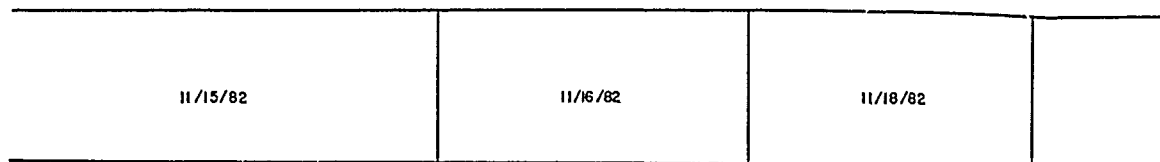
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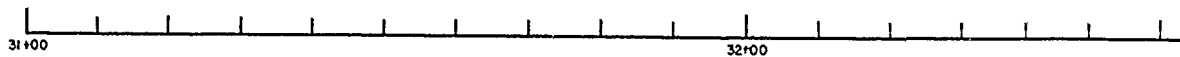
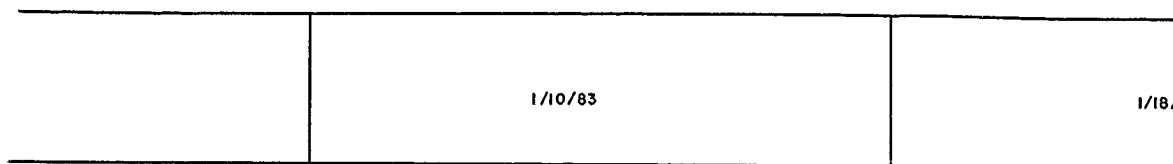
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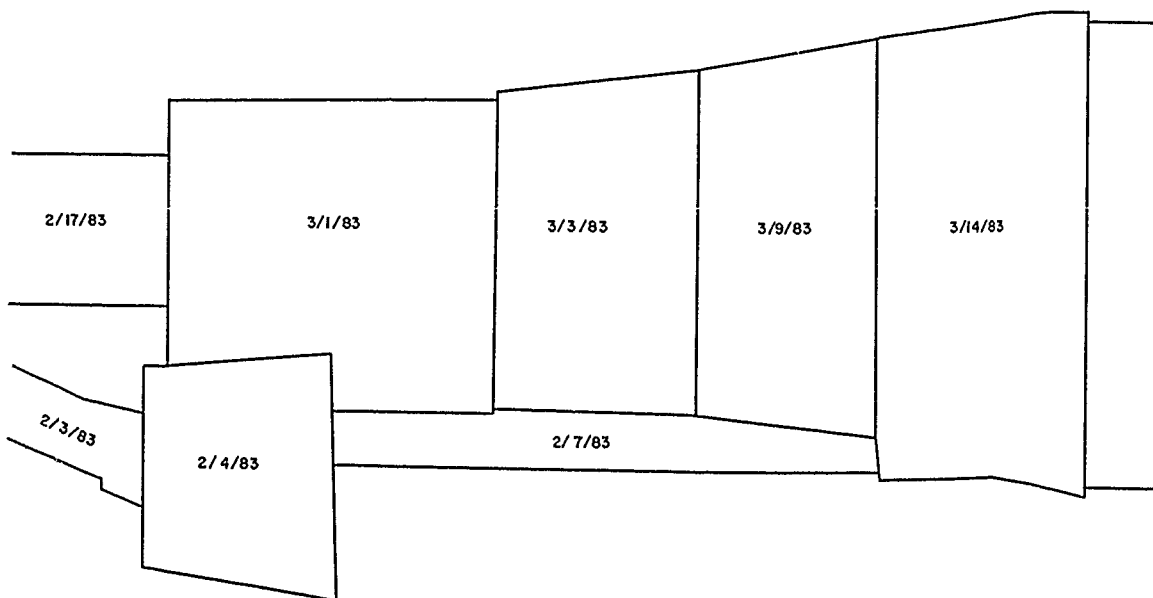


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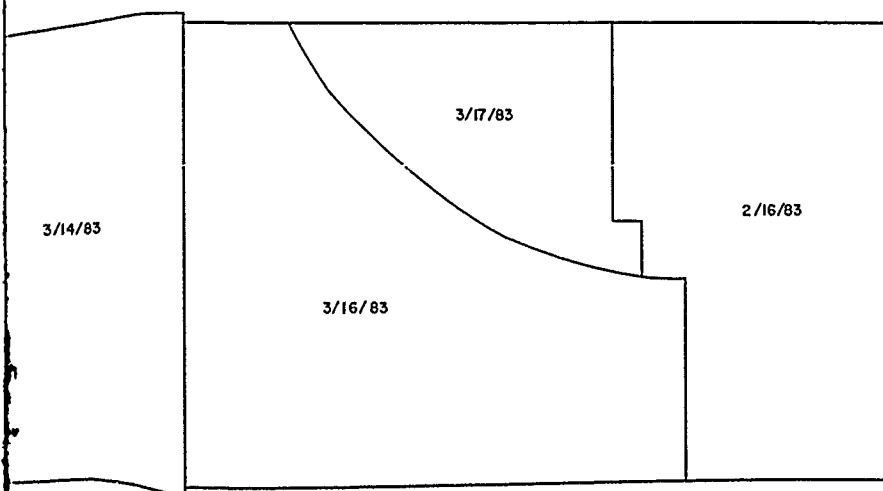
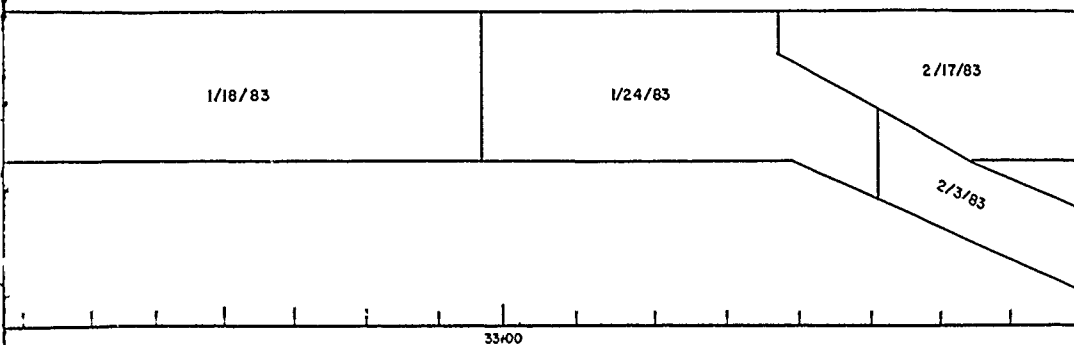
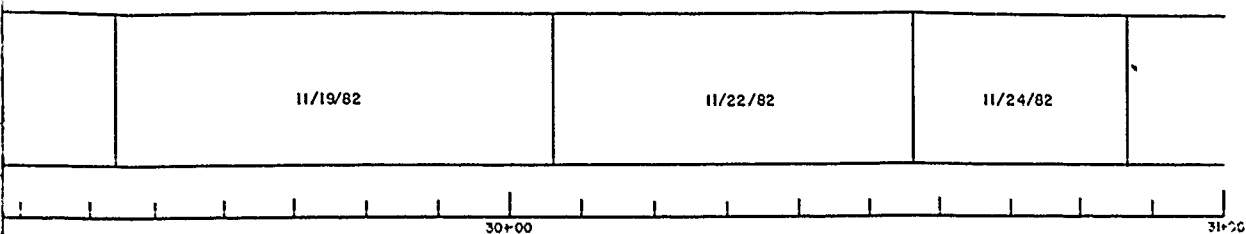
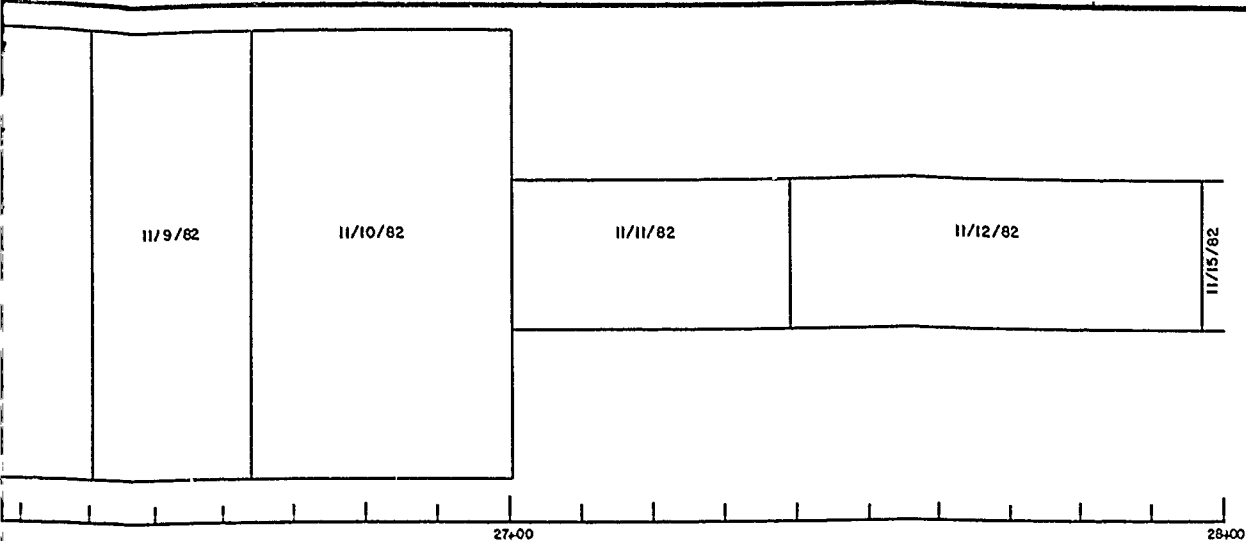


C

B



A



DESIGNED BY: HBARNETT				RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS			
DRAWN BY: C. KIRBY				FOUNDATION REPORT			
REVIEWED BY: R. BEHM				RECORD OF FOUNDATION APPROVAL			

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS